More Than a Thousand Nursing Homes Reached Infection Rates of 75 Percent or More in the First Year of the COVID-19 Pandemic; Better Protections Are Needed for Future Emergencies

Key Takeaways

Nursing homes had a surge of COVID-19 cases during the spring of 2020 and a greater surge during the fall, well after they were known to be vulnerable.

More than 1,300 nursing homes had extremely high infection rates—75 percent or more—during these surges. For-profit nursing homes made up a disproportionate percentage of these homes.

Nursing homes with extremely high infection rates experienced an average overall mortality rate approaching 20 percent— roughly double that of other nursing homes.

High COVID-19 transmission in a county did not always lead to nursing homes in that county reaching extremely high infection rates.

Significant changes are needed to protect residents and better prepare for future health emergencies.

Why OIG Did This Review

Almost every American has been affected in some way by the COVID-19 pandemic. By the end of 2020, COVID-19 had spread throughout the United States. The COVID-19 pandemic has been particularly devastating for Medicare beneficiaries in nursing homes, which is why OIG embarked on a three-part series of evaluations focusing exclusively on the nursing home experience during 2020. The first report in this series focused on beneficiaries and found that 2 in 5 Medicare beneficiaries in nursing homes either had or likely had COVID-19 in 2020.[1] Some Medicare beneficiaries in nursing homes seemed to be at greater risk than others. Specifically, Black beneficiaries, Hispanic beneficiaries, and Asian beneficiaries were more likely than White beneficiaries to have or likely have COVID-19. In addition, overall mortality for Medicare beneficiaries in nursing homes increased by almost one-third in 2020 from the 2019 level.

This is the second report in the series and builds on the first OIG report by focusing on nursing homes themselves. It looks at the extent to which they had residents who were diagnosed with COVID-19 or likely COVID-19, and the characteristics of nursing homes with extremely high infection rates. The third report will feature specific challenges nursing homes faced and the strategies they used to deal with them.

For the health and safety of residents, nursing homes must be prepared to face current and future health emergencies. Understanding how the COVID-19 pandemic has affected nursing homes can help the Centers for Medicare & Medicaid Services (CMS), Congress, and other stakeholders learn from what has happened and inform their decisions as they strive to improve care and better protect residents.

How OIG Did This Review

We used Medicare claims data to determine the extent to which nursing homes had Medicare beneficiaries who were diagnosed with COVID-19 or likely COVID-19. We looked at 15,086 nursing homes nationwide and identified nursing homes with extremely high infection rates during the surges of cases during the spring and fall of 2020. These homes had three-quarters or more of their Medicare beneficiaries diagnosed with COVID-19 or likely COVID-19 during a surge period. We examined the

characteristics of these nursing homes. We also examined whether these nursing homes had been cited with any infection control deficiencies and whether their reported nursing hours met minimum Medicare requirements for these hours.

What OIG Found

Nursing homes had a surge of COVID-19 cases during the spring of 2020 and a greater surge during the fall, well after they were known to be vulnerable. More than 1,300 nursing homes had extremely high infection rates—75 percent or more of their Medicare beneficiaries—during these surges. These nursing homes were more common and geographically widespread during the second surge. Nursing homes with extremely high infection rates experienced dramatic increases in overall mortality (not limited to deaths of beneficiaries who had or likely had COVID-19). Specifically, these nursing homes experienced an average overall mortality rate approaching 20 percent during these surges—roughly double the mortality rate of other nursing homes during the same time periods. For comparison, in 2019 the average mortality rate in these same nursing homes was 6 percent.

For-profit nursing homes made up a disproportionate percentage of the nursing homes with extremely high infection rates during both surges. Other characteristics varied by surge. For example, urban nursing homes were more likely to have extremely high infection rates during the first surge, but rural nursing homes were more likely to have extremely high rates during the second surge.

High COVID-19 transmission in a county did not always lead to nursing homes in that county reaching extremely high infection rates. In addition, the survey process did not identify any deficiencies in infection control for the majority of the nursing homes with extremely high infection rates, raising questions about how effective the survey process is in preventing and mitigating the spread of infectious disease in nursing homes. Also, the vast majority of nursing homes with extremely high infection rates reported nursing hours that met or exceeded Medicare's specific minimum requirements for these hours, which may indicate that these requirements are not adequate to keep residents safe from infectious disease.

What OIG Recommends

These findings make clear that nursing homes in this country were not prepared for the sweeping health emergency that COVID-19 created, nor were they able to stem the devastation once it was evident that nursing homes were especially vulnerable. Virtually all nursing homes experienced infections, and more than 1,300 nursing homes had extreme infection rates of 75 percent or higher during a surge period and an average overall mortality rate close to 20 percent. Significant changes are needed to protect the health and safety of residents and better prepare nursing homes for current and future health emergencies.

The administration recently announced a major initiative to improve safety and quality of care in nursing homes. The findings in this report lend urgency to the administration's initiative. We recommend that CMS, as it supports the administration's initiative, take the following actions: (1) re-examine current nursing staff requirements and revise them as necessary; (2) improve how surveys identify infection control risks to nursing home residents and strengthen guidance on assessing the scope and severity of those risks; and (3) target nursing homes in most need of infection control intervention, and provide enhanced oversight and technical assistance to these facilities as appropriate. CMS concurred with the intent of the first and third recommendations and neither concurred nor nonconcurred with the second recommendation.

RESULTS

This data brief looks at nursing homes to better understand what happened to residents during the first year of the COVID-19 pandemic. The goal is to provide objective data about nursing homes, particularly those with extremely high infection rates, to learn from their experiences in order to better prepare for current and future public health emergencies. This information can help CMS build on the actions they have already taken to address the pandemic.[2] It also can help other decisionmakers such as Congress, State governments, the long-term care industry, practitioners, and other stakeholders prepare and plan for the future to better protect the health and safety of residents.

Nursing homes had a surge of COVID-19 cases during the spring of 2020 and a greater surge during the fall, well after they were known to be vulnerable

Virtually all nursing homes had a resident diagnosed with COVID-19 or likely COVID-19 during 2020

Almost all nursing homes—99.8 percent—had at least one COVID-19 or likely COVID-19 case during 2020. In total, all but 24 of the 15,086 nursing homes nationwide had a Medicare beneficiary who was diagnosed during 2020.[3] The majority of nursing homes had more than 45 percent of their Medicare beneficiaries diagnosed with COVID-19 or likely COVID-19 during 2020.

This analysis includes all beneficiaries who were enrolled in Medicare and resided in a nursing facility or skilled nursing facility—collectively referred to here as nursing homes—during 2020. It determines the number of beneficiaries who were diagnosed with COVID-19 or likely COVID-19 in a nursing home as well as those diagnosed in a hospital or other care setting after being transferred from a nursing home. See Methodology for more detailed information.

The first surge of cases during the spring made clear that nursing homes residents were vulnerable, but there was an even greater surge in nursing homes during the fall

Nursing homes saw a surge of cases of COVID-19 and likely COVID-19 during spring 2020, particularly during April and May. On the whole, nursing homes went from dealing with hundreds of new cases per day to thousands per day in a matter of weeks. The number of Medicare beneficiaries in nursing homes who had or likely had

COVID-19 increased almost tenfold in April, rising from 492 per day in March to more than 4,700 per day in April. May saw an average of more than 4,400 new cases per day.[4]

These first months made clear that nursing home residents were particularly vulnerable during this pandemic. By the summer of 2020, this vulnerability was common knowledge, as it was recognized by CMS and others, and widely discussed in the media.[5]

Nursing homes saw an even greater surge of cases 6 months after the first surge. See Exhibit 1. During the fall, on average more than 5,800 Medicare beneficiaries in nursing homes were being diagnosed each day in November. In December, the average number topped 6,600 per day.[6] This larger second surge occurred despite the country having a better understanding of COVID-19 transmission and prevention.[7]

Exhibit 1: Nursing homes experienced a surge of new COVID-19 and likely COVID-19 cases per day during the spring and a greater surge during the fall of 2020.
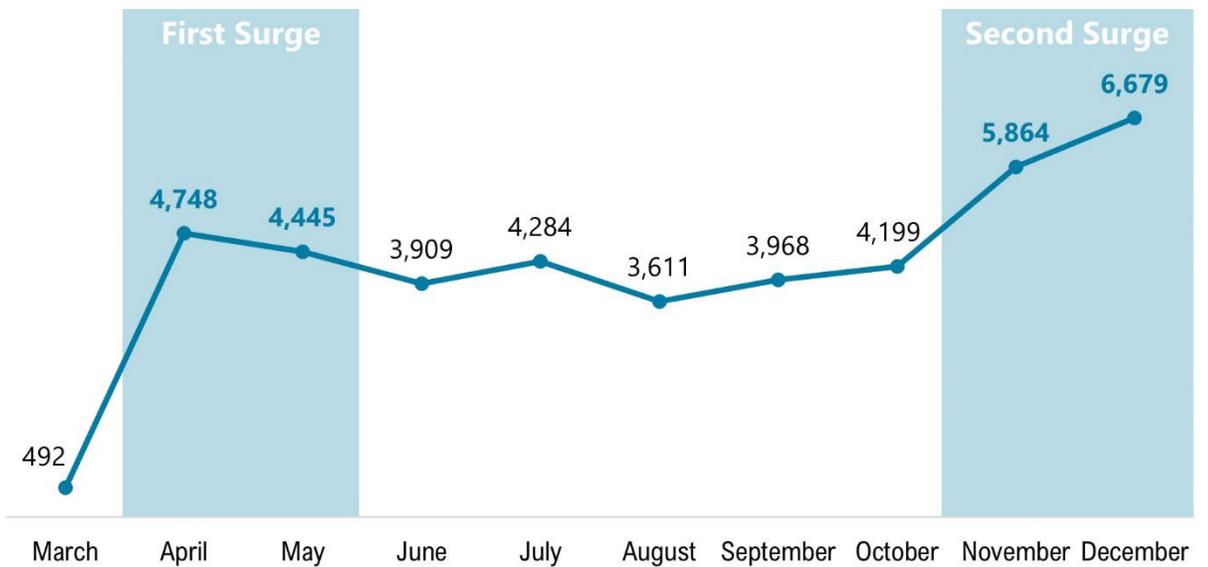
Source: OIG analysis of CMS data, 2022.

More than 1,300 nursing homes had extremely high infection rates—75 percent or more—during these surges

More than 1,300 nursing homes stand out for their particularly high infection rates. In each of these 1,358 nursing homes, three-quarters or more of the Medicare beneficiaries were diagnosed with COVID-19 or likely COVID-19 during the first or second surge. In other words, for each nursing home, at least three out of every four Medicare beneficiaries had or likely had COVID-19 over a 2-month surge period. We refer to these nursing homes as "nursing homes with extremely high infection rates."

More than 1,300 nursing homes had **three-quarters or more** of Medicare beneficiaries diagnosed with COVID-19 or likely COVID-19 during a 2-month surge period.

> The number of nursing homes with extremely high infection rates **increased** months **after nursing homes were known to be vulnerable.**

During the first surge, 542 nursing homes had extremely high infection rates. From April through May, three-quarters or more of the nursing homes' Medicare beneficiaries had COVID-19 or likely COVID-19. As noted earlier, these first months made clear that nursing home residents were particularly vulnerable.

Yet 6 months after the first surge, even more nursing homes—817—reached extremely high infection rates from November through December.[8, 9]

Nursing homes with extremely high infection rates were more common and geographically widespread during the second surge

Nursing homes with extremely high infection rates in the first surge were concentrated mainly in the Northeast. In contrast, nursing homes with extremely high infection rates during the second surge were spread out across more States, particularly in the Midwest, and were not as concentrated geographically as during the first surge. See Exhibit 2.

Exhibit 2: Nursing homes with extremely high infection rates were concentrated in the Northeast during the first surge; they were more widespread during the second.

First Surge

Nursing homes with extremely high infection rates

Other nursing homes

Second Surge
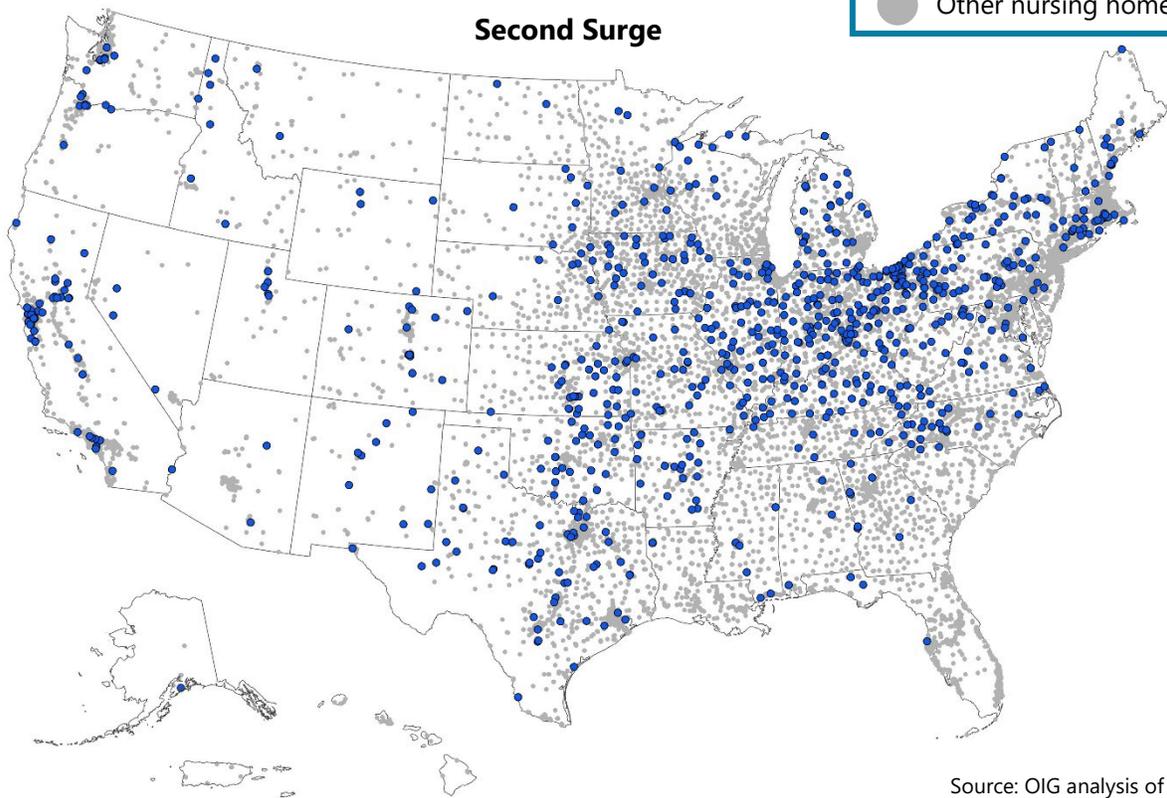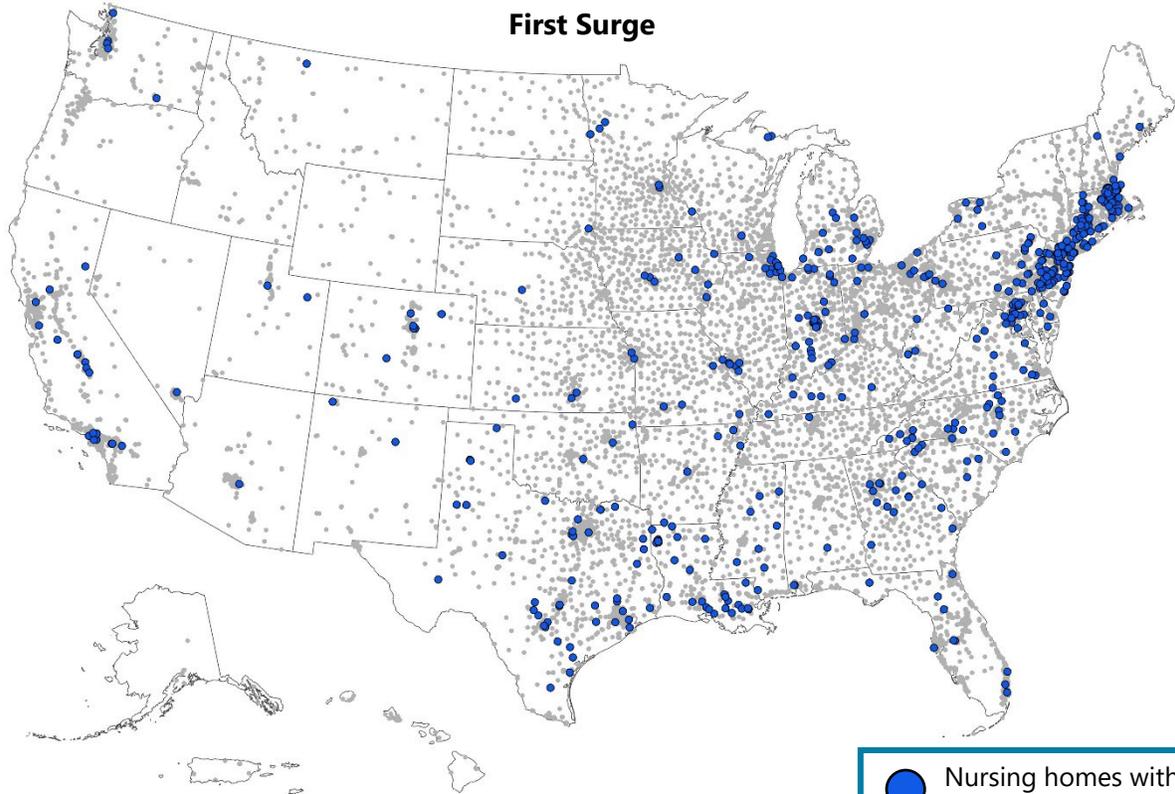
Source: OIG analysis of CMS data, 2022.

For-profit nursing homes made up a disproportionate percentage of nursing homes with extremely high infection rates during both surges; other characteristics were also notable

Overall, for-profit nursing homes made up 71 percent of all nursing homes, yet they made up 77 percent of the nursing homes with extremely high infection rates during both the first and second surges. See Exhibit 3.

In contrast, nonprofit nursing homes made up 23 percent of all nursing homes and accounted for 19 percent and 18 percent of the nursing homes with extremely high infection rates during the first and second surges, respectively. Six percent of nursing homes were owned by government entities; they accounted for 4 percent and 5 percent of nursing homes with extremely high infection rates during the first and second surges, respectively.

Exhibit 3: For-profit nursing homes made up a disproportionate percentage of homes with extremely high infection rates during both surges; other characteristics varied.

	First Surge	Second Surge
Profit Status	For-profit	For-profit
Expanse	Concentrated	Widespread
Location	Northeast	Midwest
Area	Urban	Rural
Size*	Large	Small

* Small nursing homes had 50 or fewer certified beds, medium had 51 to 150, and large had more than 150.

Other characteristics of nursing homes with extremely high rates were notably different during the second surge compared to the first. During the first surge, nursing homes in urban areas were almost twice as likely as those in rural areas to have extremely high infection rates. However, during the second surge nursing homes in rural areas were more than twice as likely as those in urban areas to have extremely high infection rates. Large nursing homes were more likely to have extremely high infection rates during the first surge. However, during the second surge, small nursing homes were more likely to have extremely high rates.

See Appendix A for additional details.

Nursing homes with extremely high infection rates experienced dramatic increases in overall mortality—roughly double those of other nursing homes

The pandemic had far-reaching implications for nursing homes with extremely high infection rates. The dramatic increases in overall mortality lay bare the human cost. For the first surge, Medicare beneficiaries in these nursing homes were three times more likely to die in April and May 2020 than in April and May of the previous year.

The average mortality rate for homes with extremely high infection rates during the first surge reached 19 percent in April and May 2020. That is, on average almost 1 in 5 Medicare beneficiaries in these homes died during the 2-month span of the first surge. This included beneficiaries who were diagnosed as having or likely having COVID-19 and those who were not. Moreover, this rate is more than twice the 9 percent average overall mortality rate for other nursing homes during the first surge. See Exhibit 4 and Appendix B.

Exhibit 4: The average overall mortality rate for nursing homes with extremely high infection rates outpaced that of other nursing homes. These rates increased dramatically from 2019 to 2020.
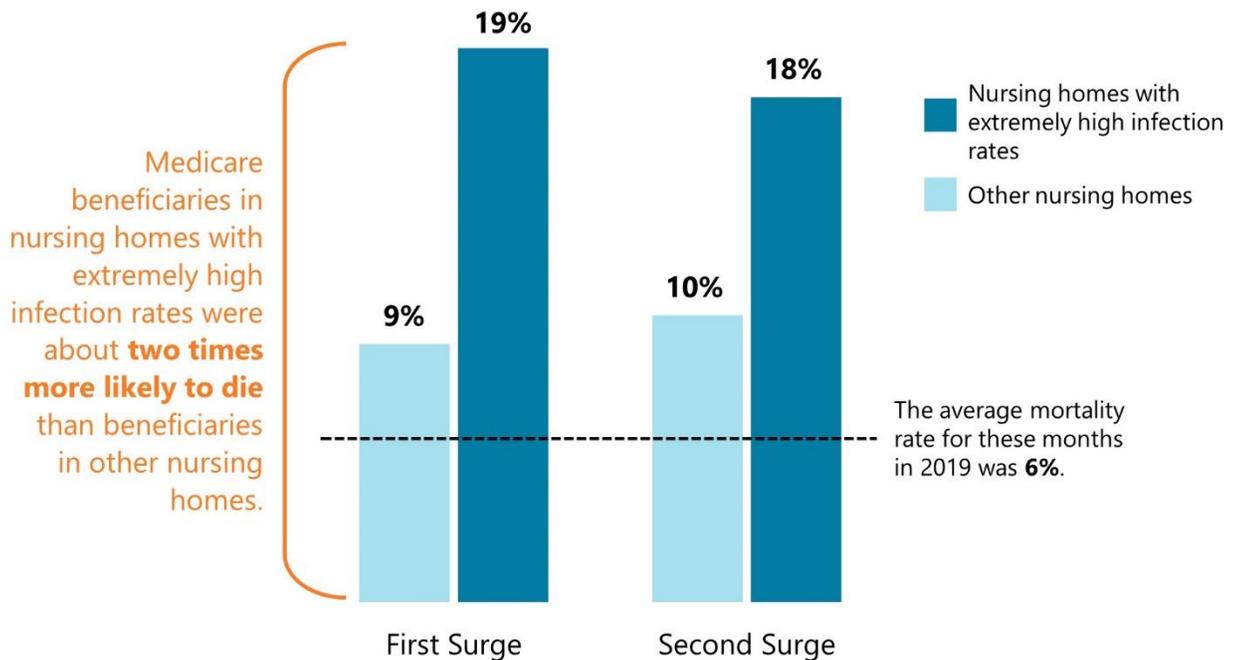
Source: OIG analysis of CMS data, 2022.

Nursing homes again experienced significant increases in mortality during the second surge. Medicare beneficiaries in nursing homes with extremely high infection rates during this surge were three times more likely to die in November and December 2020 than during those same months the previous year. The average mortality rate for homes with extremely high infection rates during the second surge was 18 percent in November and December 2020. Again, this mortality rate was markedly higher than the average overall mortality rate of 10 percent for other nursing homes during the second surge.

High COVID-19 transmission in a county did not always lead to nursing homes in that county reaching extremely high infection rates

During both surges, the majority of the counties with high COVID-19 transmission did not have any nursing homes with extremely high infection rates.[10] Sixty-three percent of the counties with high transmission during the first surge did not have any nursing homes with extremely high infection rates, and 78 percent of the counties with high transmission during the second surge did not have any nursing homes with extremely high infection rates.[11] In other words, being located in a high-transmission county did not make it inevitable that a nursing home would have an extremely high infection rate.

Moreover, during the first surge more than half of the nursing homes with extremely high infection rates were in counties that did not have high COVID-19 transmission in the community. Specifically, 304 of the 542 nursing homes with extremely high infection rates during the first surge—that is, 56 percent of these homes—were in counties that did not have high transmission.[12] During this surge, 8 percent of all counties had high transmission. During the second surge, almost all counties nationwide—98 percent of the counties—had high transmission. As such, almost all of the nursing homes with extremely high rates were found in counties with high transmission.

The survey process did not identify any deficiencies in infection control for the majority of the nursing homes with extremely high infection rates

As part of its oversight of nursing homes, CMS contracts with State agencies to conduct standard and other surveys that evaluate compliance.[17] These surveys address a host of Federal requirements, including those related to infection prevention and control. For instance, a nursing home must have an infection preventionist who is responsible for the facility's infection prevention and control program.[18] In 2020, State agencies also began conducting COVID-19 focused infection control

Nursing Home Survey Process

- CMS contracts with State agencies to conduct standard surveys of nursing homes on average every 12 months but at least once every 15 months.[13] These are periodic, onsite inspections of nursing homes to determine compliance with Federal requirements. Surveyors also conduct surveys in response to complaints.[14]

- Surveyors cite a nursing home with a deficiency when they observe a violation of Federal requirements. Surveyors classify deficiencies by scope and severity.[15]

- During the pandemic, CMS temporarily suspended many survey activities and prioritized focused infection control surveys to address the spread of COVID-19.[16] Focused infection control surveys address hand hygiene, personal protective equipment, and infection surveillance, among other practices.

surveys specifically designed to target infection control deficiencies during the pandemic.[19] See box, Nursing Home Survey Process.

More than half—54 percent—of the nursing homes with extremely high infection rates were not cited with an infection control deficiency during any survey in 2020.[20] That is, surveyors did not note any deficiencies in infection control for more than half of the homes with infection rates so high that three out of four of their Medicare beneficiaries were diagnosed as having or likely having COVID-19 over the course of just 2 months.

54%
of nursing homes with extremely high infection rates **were not cited with an infection control deficiency in 2020**
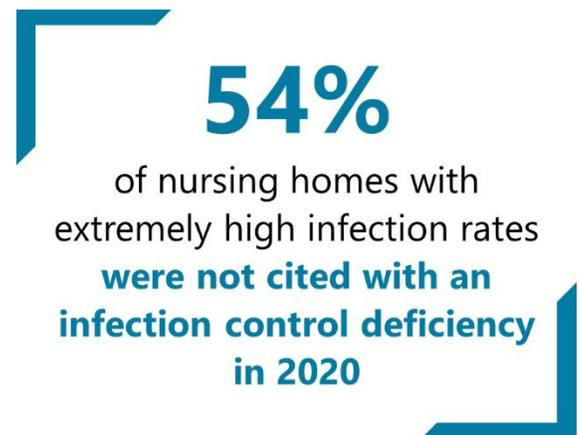
Almost all—97 percent—of the nursing homes with extremely high infection rates had multiple surveys in 2020, and still more than half of these facilities were not cited with an infection control deficiency. The vast majority of these surveys were focused infection control surveys and complaint surveys.

Furthermore, fewer than 1 in 5 nursing homes with extremely high infection rates— that is, 17 percent of these homes—were cited with a serious infection control deficiency. A serious deficiency is one that constitutes actual harm or widespread noncompliance with Federal requirements.[21] Therefore, 83 percent of the nursing homes with the highest rates of infection in the country were not found to have any serious infection control deficiencies.

This is consistent with prior OIG work on the early months of the COVID-19 pandemic, which also found that few infection control deficiencies were cited during onsite surveys.[22] Taken broadly, these findings point to a disconnect between the survey process results and the fact that many nursing homes reached extremely high infection rates and were not identified as having deficiencies. This raises questions as to how effective the survey process is in preventing and mitigating the spread of infectious disease in nursing homes.

The vast majority of nursing homes with extremely high infection rates reported nursing hours that met or exceeded Medicare's minimum requirements for these hours

Nursing homes with extremely high infection rates reported nursing hours at or above both of Medicare's specific requirements for the numbers of these hours. Medicare requires nursing homes to provide at least 8 consecutive hours of registered nursing services per day and 24 hours of licensed nursing services per day.[24] Medicare also requires nursing homes to have sufficient nursing staff.[25] Each nursing home is expected to determine the nursing staff sufficient for that home based on an assessment that the nursing home itself conducts.

> **Medicare's Minimum Nursing Hour Requirements**
>
> Medicare has established some specific nursing hour requirements that apply to all nursing homes. They must:
> - provide 8 consecutive hours of registered nursing services per day, 7 days per week; and
> - provide 24 hours of licensed nursing services per day, 7 days per week.[23]

Medicare's specific nursing hour requirements—at least 8 consecutive hours of registered nursing and 24 hours of licensed nursing each day—were adopted under the 1987 Nursing Home Reform Act.[26] These specific requirements are the same for all nursing homes regardless of their size or the acuity of residents. As such, a nursing home could meet these two minimal thresholds while still not having enough nurses to safely meet residents' needs.

The vast majority—95 percent—of nursing homes with extremely high infection rates during the first surge reported nursing hours at or above these two Medicare requirements almost all of the time.[27] During the second surge, 92 percent of nursing homes with extremely high infection rates reported the same. These findings raise questions as to whether the current number of nursing hours that Medicare specifies is sufficient to keep residents safe from infectious disease. See Exhibit 5. For context, 96 percent of the other nursing homes in each surge reported nursing hours at or above these requirements. This is consistent with earlier OIG work on nursing home staffing prior to the pandemic.[28]

Exhibit 5: The vast majority of nursing homes with extremely high infection rates during both surges reported nursing hours at or above Medicare's specific minimum requirements.

First Surge

Second Surge

95% of nursing homes with extremely high infection rates

92% of nursing homes with extremely high infection rates
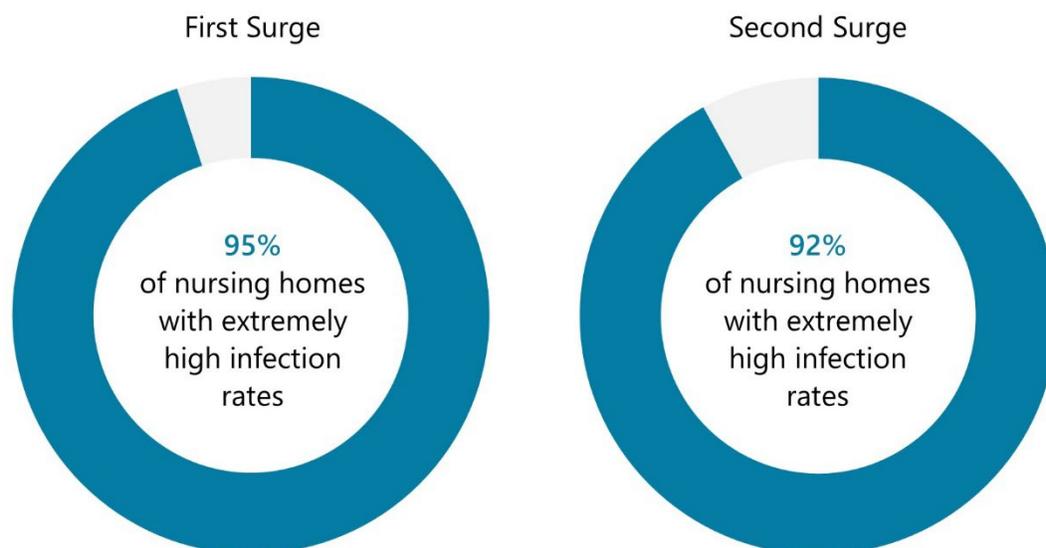
Source: OIG analysis of CMS data, 2022.

During both surges, residents received slightly less nursing time in nursing homes with extremely high infection rates than in other nursing homes.[29] The time differences were small during the first surge and larger during the second.

On average, nursing homes with extremely high infection rates during the first surge provided 3 hours and 58 minutes of nursing hours per resident per day, compared to 4 hours and 3 minutes in other nursing homes. Nursing homes with extremely high infection rates during the second surge averaged 3 hours and 48 minutes of nursing hours per resident per day, while other nursing homes on average provided 4 hours and 4 minutes.

As noted earlier, Medicare's current nursing requirements of 8 consecutive hours of registered nursing services per day and 24 hours of licensed nursing services per day are the same for all nursing homes, regardless of facility size or the acuity of residents.[30] The administration has called for new research to determine the level and type of staffing needed to ensure safe and quality care. It intends to propose new minimum staffing levels that nursing homes must meet or exceed.[31]

In addition, industry groups, the media, and other stakeholders have chronicled a significant shortage of nursing home staff, noting that the pandemic has exacerbated preexisting challenges in recruitment and retention.[32] Nursing homes report staffing shortages and cite difficulties in hiring new staff, particularly because of a lack of qualified or interested candidates.[33] Experts in long-term care report that burnout, worry over COVID-19 exposure, and other factors have contributed to nursing home

staff leaving the industry entirely.[34] One expert described the situation as "a crisis on steroids."[35] These challenges have to be considered if minimum staffing levels are to increase. The administration also is exploring ways to address nursing homes' workforce challenges.[36]

RECOMMENDATIONS

The tragic toll the COVID-19 pandemic took on nursing homes continued throughout 2020, with virtually all nursing homes having a resident diagnosed with COVID-19 or likely COVID-19 during the year. There was a surge of cases during the spring and a greater surge during the fall. More than 1,300 nursing homes stood out as having extremely high infection rates. These homes had at least three-quarters of their Medicare beneficiaries diagnosed with COVID-19 or likely COVID-19 during a 2-month surge period. Nursing homes with these extremely high infection rates were more common and geographically widespread during the second surge, even though this surge occurred several months after nursing homes were known to be vulnerable and more was known about prevention and treatment. For-profit nursing homes made up a disproportionate percentage of nursing homes with extremely high infection rates during both surges.

Nursing homes with extremely high infection rates experienced dramatic increases in overall mortality—roughly double the average mortality rate for all other nursing homes during these surges. High COVID-19 transmission in a county did not always lead to nursing homes in that county reaching extremely high infection rates. The survey process did not identify any deficiencies in infection control for the majority of nursing homes with extremely high infection rates, calling into question how effective the survey process is in preventing and mitigating the spread of infectious disease. In addition, the vast majority of nursing homes with extremely high infection rates reported nursing hours that met or exceeded Medicare's specific minimum requirements for these hours, which may indicate that these requirements are not adequate to keep residents safe from infectious disease.

These findings make clear that nursing homes in the United States were not prepared for the sweeping health emergency that COVID-19 created. Nor were they able to stem the devastation once it was evident that nursing homes were especially vulnerable. The need for improvement is clear. For the health and safety of residents, nursing homes must be prepared to face current and future health emergencies.

The administration has announced a major initiative to improve safety and quality of care in nursing homes. The findings in this report lend urgency to this initiative as well as the need to reform some areas of longstanding concern, including staffing and oversight. We recommend that CMS, as it supports the administration's initiative, take the actions cited below.

We recommend that CMS:

Re-examine current nursing staff requirements and revise them as necessary

We found that nursing homes with extremely high infection rates reported nursing hours that met or exceeded Medicare's specific minimum requirements for these hours. Meeting these requirements did not prevent these nursing homes from reaching the highest COVID-19 infection rates in the country. Medicare's specific nursing hour requirements were established in 1987.[37] CMS should re-examine these requirements and revise them as necessary to ensure residents receive good care.

Our findings provide further evidence of the need to determine the level and type of nursing staff necessary to ensure safe and high-quality care. Our findings also provide evidence of the need to propose new minimum staffing levels that nursing homes must meet, which the administration has committed to undertaking. In doing so, CMS should assess the level of nursing needed to adequately prevent and manage infection in addition to other quality-of-care considerations. It should also examine the most effective use of infection preventionists in the nursing home setting. This research could be included in the study that has been called for by the administration to help determine the level and type of staffing needed to ensure safe and quality care in nursing homes.[38]

While considering its next steps, CMS should also re-evaluate the staffing data it collects from nursing homes and align these data with staffing requirements that will be used moving forward. For example, amending staffing data to include a timestamp would better allow CMS to determine whether nursing homes have provided around-the-clock nursing services. This would assist CMS in monitoring compliance with staffing requirements, as well as ensure quality data for future analyses.[39]

Lastly, while developing new minimum requirements, CMS needs to recognize the staffing challenges faced by nursing homes in general and consider what role it could play in strengthening the nursing home workforce to ensure that nursing homes can viably staff at those required levels.

Improve how surveys identify infection control risks to nursing home residents and strengthen guidance on assessing the scope and severity of those risks

CMS should improve the survey process so that it more effectively identifies problems that put nursing home residents at risk for infectious disease. The survey process is a critical oversight tool for CMS and, as such, must be meaningful. Surveys must be

able to identify problems within a nursing home that put residents at risk for infectious disease.

Previous OIG work looked at surveys conducted from March 23 through May 30, 2020, and recommended that CMS assess the results of infection control surveys and revise the survey as appropriate.[40] This current work expands on the previous work by looking at all surveys conducted in 2020. Our findings demonstrate the need to re-examine more broadly the survey practices used to detect infection control problems that put residents at risk. The surveys conducted in 2020 found few deficiencies at nursing homes that had extremely high infection rates. Moreover, no deficiencies were found in more than half of these homes. These homes passed Medicare's infection control test, yet COVID-19 was able to engulf them in a matter of weeks. This calls into question how effective the current surveys are in finding and preventing problems with infection control in nursing homes.

CMS should seek input from a broad range of experts in infection control to develop more effective methods of identifying problems in nursing homes that put residents at risk. CMS has successfully convened Technical Expert Panels for other purposes and may want to consider doing something similar as part of its effort to improve the survey process. CMS could also consult with other knowledgeable sources on the best way to identify infection control problems within nursing homes. These could include entities such as the Association for Professionals in Infection Control and Epidemiology, the Agency for Healthcare Research and Quality, and The Joint Commission.

Identified problems must be cited at a scope and severity that adequately reflects the risk faced by residents of the nursing home. Fewer than 1 in 5 nursing homes with extremely high infection rates were cited with a serious infection control deficiency. CMS should reevaluate and revise as appropriate its scope and severity guidance on citing deficiencies.[41] Once problems are identified and appropriately cited, CMS must hold nursing homes accountable.

Target nursing homes in most need of infection control intervention, and provide enhanced oversight and technical assistance to these facilities as appropriate

Although it is an important oversight tool, the survey process—even when improved—cannot alone find all the nursing homes in most need of additional oversight or technical assistance. CMS should supplement the survey process by conducting further data analysis to identify additional nursing homes in need of intervention. These may be nursing homes with dramatic increases in mortality, a high percentage of residents with infectious diseases, or nursing homes with other characteristics that raise concern. This analysis could help CMS's efforts to effectively target its resources toward nursing homes most in need of intervention.

As our report demonstrates, analysis of existing data can be a powerful tool to identify nursing homes that may be unable to adequately protect their residents. These data include the Minimum Data Set (MDS); the Medicare Enrollment Database; Medicare Parts A, B, and C claims; the Payroll Based Journal; and the Certification and Survey Provider Enhanced Reporting system. CMS should augment its existing efforts by analyzing these or other reliable, relevant data to determine which nursing homes warrant greater attention. CMS should provide these nursing homes with technical assistance, increased scrutiny, or other innovative efforts that CMS deems appropriate.

AGENCY COMMENTS AND OIG RESPONSE

CMS concurred with the intent of two of our recommendations and neither concurred nor nonconcurred with another. OIG is committed to protecting the health and safety of nursing home residents and will continue to work with CMS to promote its implementation of our recommendations aimed at that outcome. Given the devastating impact the COVID-19 pandemic has had on nursing home residents, the findings call for doing all we can to improve protections for these residents.

CMS concurred with the intent of the recommendation to re-examine current nursing staff requirements and revise them as necessary, as it aligns with the President's initiative to improve the safety and quality of care in the Nation's nursing homes. CMS has begun to take steps, such as soliciting public comments on minimum staffing requirements and launching a staffing study. OIG supports these steps and looks forward to learning the results of the study. As CMS develops new minimum staffing requirements, it should also re-evaluate the staffing data it collects and align these data with any new requirements.

CMS did not concur or nonconcur with the recommendation to improve how surveys identify infection control risks to nursing home residents and strengthen guidance on assessing the scope and severity of those risks. Instead, CMS stated that it prioritized focused infection control and immediate jeopardy surveys at the start of the public health emergency. It also shared the focused infection control tool with nursing homes so they could voluntarily review their own compliance. We note that the surveys conducted in 2020, including the focused infection control surveys, found no deficiencies in more than half of the nursing homes with extremely high infection rates, despite these homes having undergone multiple surveys. These findings call into question how effective the survey process is in preventing and mitigating the spread of infectious disease in nursing homes. We continue to call for CMS to re-examine more broadly the survey practices used to detect infection control problems that put residents at risk. One suggestion is to convene a Technical Expert Panel to seek input from a broad range of experts in infection control. We ask that CMS clarify in its Final Management Decision the additional steps it will take to improve the survey process to better protect nursing home residents from infection control risks.

CMS concurred with the intent of our third recommendation to target nursing homes in most need of infection control intervention, and provide enhanced oversight and technical assistance to these facilities as appropriate. CMS stated that technical assistance to nursing homes is helpful and done in part by Quality Improvement Organizations (QIOs), which have provided educational activities and frontline training for nursing home staff. OIG acknowledges the important activities of QIOs. However, our findings make clear the need to do more. For example, nursing homes with

extremely high infection rates experienced dramatic increases in overall mortality—roughly double the average mortality rate for all other nursing homes during the surges of 2020. Our recommendation is for CMS to supplement its efforts by conducting further data analysis to identify nursing homes in need of intervention, such as those with dramatic increases in mortality. Analysis of CMS's existing data can be a powerful tool for identifying nursing homes that may be unable to adequately protect their residents. Medicare claims data, the Minimum Data Set, the Payroll Based Journal, and the Certification and Survey Provider Enhanced Reporting system are all rich resources that can be used to identify nursing homes in need of more oversight or technical assistance.

In addition to its responses to our recommendations, CMS offered feedback on our analysis, requesting different, more specific analytic breakouts that it would find helpful. Our approach was to provide a comprehensive picture of the strain nursing homes were under. The comprehensiveness of our data presents a picture of the full impact of the pandemic on nursing homes. This must be understood so that needed improvements can be made. Certainly, other analyses could also be useful to CMS, and where we were able to offer more detail, we did. As previously stated, OIG is committed to protecting the health and safety of nursing home residents and will continue to work with CMS to help nursing homes be prepared to face current and future health emergencies.

For the full text of CMS's comments, see Appendix C.

METHODOLOGY

We based this study primarily on an analysis of data from: (1) the MDS; (2) the Medicare Enrollment Database; (3) Medicare Parts A, B, and C claims; (4) the Payroll Based Journal; and (5) the Certification and Survey Provider Enhanced Reporting (CASPER) system.

Identification of Medicare Beneficiaries Residing in Nursing Homes

We used the MDS to identify individuals who resided in nursing homes. The MDS includes assessments completed by the nursing home for each individual residing in these facilities. Nursing homes must complete these assessments periodically for all residents—including beneficiaries receiving Medicare or Medicaid. Using each resident's unique identifier, we matched the data from the MDS to the Medicare Enrollment Database to identify residents who were enrolled in Medicare. We then identified the Parts A, B, and C claims for these Medicare beneficiaries.

This analysis includes all beneficiaries who were enrolled in Medicare and resided in a nursing home during 2020. We considered a beneficiary to be a nursing home resident from the date of the first MDS assessment at the facility until the date that the beneficiary is discharged from the facility to go home or dies. Therefore, a beneficiary who resided in a nursing home and entered a hospital for treatment is still considered a nursing home resident during the time spent in the hospital.

Next, we identified which beneficiaries were diagnosed as having or likely having COVID-19. We considered a beneficiary who had a diagnosis code of B97.29 or U07.1 on a claim to have a diagnosis of COVID-19 and a beneficiary who had a diagnosis code of Z20.828 on a claim to likely have COVID-19.[42]

For more information on how we identified Medicare beneficiaries with COVID-19 or likely COVID-19 residing in nursing homes, see our related report *COVID-19 Had a Devastating Impact on Medicare Beneficiaries in Nursing Homes During 2020*, OEI-02-20-00490.

Identification of Nursing Homes With Extremely High Infection Rates

We identified two distinct periods with dramatically high infection rates in nursing homes. The first was April through May, and the second was November through December.[43] We refer to these periods as surges.

Next, we determined the extent to which nursing homes had Medicare beneficiaries diagnosed with COVID-19 or likely COVID-19 during the respective surges. To do this, we identified Medicare beneficiaries residing in each nursing home during the two surges. We then calculated the percentage of beneficiaries who were diagnosed with COVID-19 or likely COVID-19.[44] We based this study on 15,086 nursing facilities and skilled nursing facilities—collectively referred to as nursing homes—that each served at least 30 Medicare beneficiaries in 2020.

We analyzed the distribution and identified all nursing homes that had three-quarters or more of their Medicare beneficiaries diagnosed with COVID-19 or likely COVID-19 during the first or second surge. We considered these facilities to be nursing homes with extremely high infection rates.

Analysis of Nursing Homes With Extremely High Infection Rates

Characteristics of Nursing Homes. We determined whether the nursing homes with extremely high infection rates were associated with certain characteristics. We examined the extent to which these nursing homes were concentrated in particular geographic locations. To do this, we mapped the locations of these nursing homes and all other nursing homes in the two surges based on the CASPER data.

We also examined ownership status (for-profit, nonprofit, government-owned) and size (small, medium, large) based on CASPER data.[45] Lastly, we determined whether the nursing homes with extremely high infection rates were located in a rural or urban county based on Core-Based Statistical Area (CBSA) data.[46] We examined the extent to which all nursing homes and nursing homes with extremely high infection rates had these characteristics and how that differed between the first and second surges.

Overall Mortality. We determined the overall mortality rate among nursing homes with extremely high infection rates during the two surges.[47] To do this, we calculated the percentage of beneficiaries who died during the respective surges for each nursing home.[48] We used the date of death from the Social Security Administration, which is contained in the Medicare Enrollment Database, to identify those beneficiaries who died.

We compared the average mortality rate among the nursing homes with extremely high infection rates to the average mortality rate among other nursing homes during each surge. We also compared the average mortality rate among nursing homes with extremely high infection rates in the first surge (April through May 2020) to the average mortality rate among those same nursing homes during the corresponding 2-month period in 2019. We conducted a similar analysis for the second surge.

Community Transmission. We examined the extent to which nursing homes with extremely high infection rates were located in counties with high transmission of COVID-19. We first determined the community transmission for each county. To do this, we obtained daily county-level cumulative data on confirmed COVID-19 cases from USAFacts.org and county-level population data from the U.S. Census Bureau.[49]

We calculated the average number of new COVID-19 cases per 100,000 persons over any given 7 days during each surge, for each county. We classified each county as having low, moderate, substantial, or high community transmission during each surge, using CDC's definition of community transmission.[50] We then determined the percentage of counties that had high transmission for each surge. Next, we determined the percentage of nursing homes with extremely high infection rates that were located in counties that had high transmission. We also determined the percentage of counties with high transmission that had no nursing homes with extremely high infection rates.

Infection Control Deficiencies. We examined the extent to which nursing homes with extremely high infection rates were cited with infection control deficiencies.[51] Using CASPER data, we analyzed deficiencies cited on nursing home surveys conducted in 2020. These surveys included standard surveys, focused infection control surveys, and surveys conducted in response to a complaint.[52] Specifically, we analyzed whether the nursing home had any infection control deficiencies during any of its surveys in 2020.

We also examined the extent to which nursing homes with extremely high infection rates were cited with infection control deficiencies that were serious. To do this, we used the scope and severity information in the CASPER data. We calculated the percentage of nursing homes with extremely high infection rates that had a serious deficiency. We considered any infection control deficiency with a scope and severity at a level of F or above to be serious.[53]

Staffing Levels. We examined the extent to which nursing homes with extremely high infection rates reported staffing in 2020 that met Medicare's specific requirements for nursing hours.[54] We determined the extent to which these nursing homes reported nursing hours that met the Medicare requirements for these hours, specifically that nursing homes must have a registered nurse (RN) on staff for at least 8 consecutive hours per day, 7 days per week and a licensed nurse (i.e., RN or licensed practical nurse/licensed vocational nurse (LPN/LVN)) on staff 24 hours per day, 7 days per week.[55] Each quarter, nursing homes submit to the Payroll Based Journal daily staffing information that includes the hours and category of work an employee performs.[56] We used these data to determine whether nursing homes reported at least 7.5 RN hours and 22.5 licensed nurse hours each day.[57] We then calculated the percentage of nursing homes with extremely high infection rates that reported nursing hours at or above these levels. We considered nursing homes that reported nursing hours at or above these levels at least 90 percent of the time to have staffing at or above the requirements.

We also examined the extent to which nursing homes with extremely high infection rates provided nursing time each day to each resident. Specifically, we assessed the average number of nursing hours per resident per day (HPRD) in 2020. Each quarter, CMS calculates the average HPRD for all nursing staff.[58] CMS then adjusts the HPRD values to account for the acuity, or case-mix, of the residents in the nursing home.[59]

We determined each nursing home's average nursing HPRD by averaging the adjusted nursing HPRD measure that CMS calculates.[60]

Limitations

This study determines the extent to which nursing homes had Medicare beneficiaries who were diagnosed as having COVID-19 or likely COVID-19 based on Medicare claims data; it does not include a review of medical records. It also determines the number of Medicare beneficiaries who died; it does not include a review of death certificates nor determinations about whether COVID-19 was the cause of death for these beneficiaries. Lastly, we note that CMS requires nursing homes to submit to the Payroll Based Journal only those hours that staff are paid to work, but that it is possible that a nurse may have worked additional hours that were unpaid and therefore not reported.[61]

Standards

We conducted this study in accordance with the *Quality Standards for Inspection and Evaluation* issued by the Council of the Inspectors General on Integrity and Efficiency.

Characteristics of Nursing Homes With Extremely High Infection Rates

Exhibit A-1: Percentage of All Nursing Homes and Nursing Homes With Extremely High Infection Rates by Profit Status

Profit Status	Percentage of All Nursing Homes	Percentage of Nursing Homes With Extremely High Infection Rates	
		First Surge	Second Surge
For-profit	71%	77%	77%
Nonprofit	23%	19%	18%
Government	6%	4%	5%

Source: OIG analysis of CMS data, 2022.

Exhibit A-2: Percentage of All Nursing Homes and Nursing Homes With Extremely High Infection Rates by Area

Area	Percentage of All Nursing Homes	Percentage of Nursing Homes With Extremely High Infection Rates	
		First Surge	Second Surge
Rural	27%	17%	47%
Urban	73%	83%	53%

Source: OIG analysis of CMS data, 2022.

Exhibit A-3: Percentage of All Nursing Homes and Nursing Homes With Extremely High Infection Rates by Size

Size*	Percentage of All Nursing Homes**	Percentage of Nursing Homes With Extremely High Infection Rates	
		First Surge**	Second Surge
Large	16%	19%	6%
Medium	72%	74%	77%
Small	13%	6%	17%

* Small nursing homes had 50 or fewer certified beds, medium homes had 51 to 150, and large had more than 150.
** Percentages in this column may not equal 100 percent because of rounding.
Source: OIG analysis of CMS data, 2022.

APPENDIX B

Overall Mortality Rates Among Nursing Homes With Extremely High Infection Rates

Exhibit B-1: Average Overall Mortality Rates in April and May 2019 and in April and May 2020 for Nursing Homes With Extremely High Rates During the First Surge and Other Nursing Homes

	Nursing Homes With Extremely High Infection Rates During the First Surge		Other Nursing Homes	
	2019	2020	2019	2020
Average overall mortality rate in April and May	6%	19%	6%	9%

Source: OIG analysis of CMS data, 2022.

Exhibit B-2: Average Overall Mortality Rates in November and December 2019 and in November and December 2020 for Nursing Homes With Extremely High Infection Rates During the Second Surge and Other Nursing Homes

	Nursing Homes With Extremely High Infection Rates During the Second Surge		Other Nursing Homes	
	2019	2020	2019	2020
Average overall mortality rate in November and December	6%	18%	6%	10%

Source: OIG analysis of CMS data, 2022

APPENDIX C

Agency Comments

Following this page are the official comments from CMS.

DATE: November 14, 2022

TO: Gregory E. Demske
              Acting Principal Deputy Inspector General

FROM: Chiquita Brooks-LaSure
              Administrator

SUBJECT: Office of Inspector General Draft Brief: More Than a Thousand Nursing Homes
              Reached Infection Rates of 75 Percent or More in the First Year of the COVID-19
              Pandemic; Better Protections Are Needed for Future Emergencies, OEI-02-20-
              00491

The Centers for Medicare & Medicaid Services (CMS) appreciates the opportunity to review and comment on the Office of Inspector General's (OIG) draft report.

CMS thanks the OIG for their review in this area and is similarly committed to transparency, which we have used to highlight the disproportionate impact of COVID-19 on patient populations, including individuals residing in nursing homes.[1] In the first year of the COVID-19 pandemic, nursing homes were severely impacted by COVID-19, with outbreaks causing high rates of infection, morbidity, and mortality. The vulnerable nature of the nursing home population combined with the inherent risks of living in a congregate health care setting have required aggressive efforts to limit COVID-19 exposure and to prevent the spread of COVID-19 within nursing homes. Given the continued high incidence of COVID-19 and the likelihood that new variants and other infectious agents may cause future outbreaks, CMS sought to understand the relationship between nursing homes and the COVID-19 public health emergency and published data and several analyses. This includes an in-depth look at the impact of COVID-19 on Medicare beneficiaries residing in nursing homes during 2020[2] and a CMS-funded study to analyze the relationship between quality ratings and COVID-19 infections, published in May 2021.[3]

Even before the COVID-19 pandemic began, CMS had acted to strengthen infection prevention and control practices in nursing homes. CMS took pivotal actions in the 2016 final rule, Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers, which outlined the need for nursing homes to prepare for infectious disease threats.[4]

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[1] CMS, CMS COVID-19 Data Products, Updated on November 05, 2021

[2] CMS, The Impact of COVID-19 on Medicare Beneficiaries, 2021

[3] Williams, C., Zheng, Q., White, A., Bengtsson, A., Shulman, E., Herzer, K., Lee F., The Association of Nursing Home Quality Ratings and Spread of COVID-19, Vol. 6, Is. 8, Journal of the American Geriatrics Society, May 31, 2021

[4] Medicare and Medicaid Programs; Emergency Preparedness Requirements, 81 Fed. Reg. 63860, 63862 (Sept. 16, 2016).

CMS also outlined specific reform requirements for long-term care facilities in the 2016 final rule, Medicare and Medicaid Programs: Reform of Requirements for Long-Term Care Facilities, which was the impetus for the requirement that nursing homes develop an infection prevention and control program that includes an antibiotic stewardship program.[5]

Since the COVID-19 public health emergency declaration in early 2020, CMS has taken a number of actions to further strengthen infection prevention and control within nursing homes. CMS began by issuing guidance to nursing homes, encouraging them to take appropriate action to address potential and confirmed COVID-19 cases and mitigate transmission. CMS reiterated the importance of longstanding infection control guidelines and guidelines on screening processes and the use of personal protective equipment (PPE). CMS has held regular calls with stakeholders, nursing home associations, and State Survey Agencies (SSAs) to keep them up to date on the latest information to respond to COVID-19 and listened to the challenges faced by nursing homes, such as access to PPE, continuing staffing issues, and a lack of availability of testing and vaccinations during the first year of the public health emergency.

In an effort to focus on controlling the spread of COVID-19, CMS provided SSAs, who conduct onsite surveys to assess compliance with federal requirements and investigate facility complaints, with a streamlined review tool to conduct focused infection control surveys of providers identified through collaboration with the Centers for Disease Control and Prevention (CDC) and the Administration for Strategic Preparedness & Response (ASPR). This tool was shared with providers who were encouraged by CMS to use it to self-assess their own ability to prevent the spread of COVID-19. By July 2020, over 99 percent of Medicare and Medicaid certified nursing homes had a focused infection control survey conducted onsite. As the public health emergency continued, the focused infection control survey was revised to incorporate new infection control requirements to address the spread of COVID-19 as appropriate. CMS also published a toolkit comprised of recommendations and best practices from a variety of frontline health care providers, state governors' COVID-19 task forces, associations, and other experts that is intended to serve as a catalog of resources dedicated to addressing the specific challenges facing nursing homes as they combat COVID-19.[6] CMS continues to review and revise guidance as needed.

At the beginning of the public health emergency in 2020, CMS required nursing homes to report COVID-19 cases in their facility to the CDC's National Healthcare Safety Network on a weekly basis. This data was used to strengthen surveillance locally and nationally, monitor trends in infection rates, and help local, state and federal health authorities get help to nursing homes faster. This data was also posted online for the public. For example, CMS used this data, in part, to identify which nursing homes may need targeted help through the Quality Improvement Organizations (QIOs) to strengthen infection control practices to reduce and prevent transmission of COVID-19. Throughout the course of the public health emergency, QIOs have helped facilities address many COVID-19 challenges related to staffing, PPE, infection prevention and control activities, COVID-19 testing, and vaccine uptake. The QIOs connect

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[5] Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities, 81 Fed. Reg. 68688 (Nov. 28, 2016).
[6] QSO-21-08-NLTC: COVID-19 Focused Infection Control Survey Tool for Acute and Continuing Care Providers and Suppliers (Revised).

nursing homes with local resources, provide educational activities, and train nursing home staff and management. At the current phase of the public health emergency, QIOs focus on vaccination and infection prevention and control practices to reduce the spread of infection and manage outbreaks effectively, as well as providing individualized training resources based on the nursing home's specific needs through toolkits, resource materials, guides, webinars, and clinician office hours to provide expert consultation on the particular challenges nursing homes face. CMS collects best practices and lessons learned from each of the QIOs and coordinates the sharing of that information across QIOs nationally for rapid deployment. Additionally, CMS partners with federal agencies such as the CDC and ASPR, which are the agencies tasked with national leadership of disease prevention and control and public health emergency response, to ensure coordination of services and alignment of guidance for nursing homes.

Given the severity of COVID-19's impacts on nursing home residents, they were among the first in the country to be offered a vaccine once the Food and Drug Administration granted emergency use authorization to the first COVID-19 vaccine in December 2020. CMS also issued an interim final rule with comment period (86 FR 26306) to ensure nursing homes educate on and offer the COVID-19 vaccine to residents, clients, and staff.[7] Continuing CMS's commitment to transparency, in September of 2021, CMS began posting nursing home staff and resident COVID-19 vaccination data in a user-friendly format on its Nursing Home Care Compare website. Subsequently, in February 2022, CMS began posting staff and resident booster shot data to the website.[8]

As we continue to emerge from the COVID-19 pandemic, ensuring that residents in nursing homes receive safe, high-quality care is a high priority for the agency. CMS is continuing the work it started before the COVID-19 pandemic to strengthen its health and safety requirements that protect residents' rights and improve the quality of care they receive. Based on lessons learned from the pandemic, CMS released guidance related to the requirement for all nursing homes to have an Infection Preventionist (IP) who has specialized training to effectively oversee the facility's infection prevention and control program. With emerging infectious diseases such as COVID-19, CMS believes the role of the IP is critical in nursing homes' efforts to mitigate the onset and spread of infections. CMS recently revised guidance to clarify its expectations for infection control and prevention.[9]

CMS appreciates OIG's review of likely COVID-19 infection rates at nursing homes in the first year of the pandemic; however, CMS is concerned that OIG's methodology may have led to an overestimation of cases and infection rates. For example, OIG used three medical diagnosis codes to calculate the number of infections, only one of which includes *confirmed* COVID-19 cases. After testing became available, beginning on April 1, 2020, the CDC directed providers to document a confirmed diagnosis of COVID-19, as confirmed by a positive test result, or a

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[7] Medicare and Medicaid Programs; COVID-19 Vaccine Requirements for Long-Term Care (LTC) Facilities and Intermediate Care Facilities for Individuals with Intellectual Disabilities (ICFs-IID) Residents, Clients, and Staff, May 21, 2021

[8] CMS Makes Nursing Home COVID-19 Booster Vaccination Online Increasing Transparency, CMS News Alert, Feb. 09, 2022.

[9] QSO-22-19-NH Revised Long-Term Care Surveyor Guidance: Revisions to Surveyor Guidance for Phase 2 & 3, Arbitration Agreement Requirements, Investigating Complaints & Facility Reported Incidents, and the Psychosocial Outcome Severity Guide.

presumptive test result, with the code U07.1.[10] CMS's COVID-19 analyses of claims and encounter data about the impact of COVID-19 on Medicare beneficiaries before April 1, 2020 included the code B97.29 (other coronaviruses as the cause of diseases, which does not distinguish between more than 30 types of coronaviruses, including some that cause the common cold).[11] Starting on April 1, 2020, based on guidance from the CDC, CMS updated the analyses to include the code U07.1 (confirmed COVID-19 test result).[12]

However, CMS's understanding of OIG's analysis is that the OIG included an additional code for contact with or suspected exposure (Z20.828), including after testing was widely available, without distinguishing the number of cases in each category. OIG included instances using this code as "Likely COVID-19" for the entire study period even though Z20.828 represents persons who (a) had contact and suspected exposure with someone else confirmed or presumed to have COVID-19, but also (b) a negative or unknown COVID-19 test result.

CMS encourages OIG to report the results of the three codes separately within the report to differentiate nursing homes with high volumes of COVID-19 cases from those with high proportions of reported suspected exposures. While CMS shares OIG's commitment to identifying COVID-19 infections, including individuals with contact or suspected exposure but with an unconfirmed COVID-19 infection, combining these categories, especially after testing was widely available, provides an incomplete and potentially inaccurate picture of circumstances in these nursing homes and limits CMS's ability to act on the findings because the root cause is not identified.

Another area of concern is that OIG did not distinguish residents who contracted a COVID-19 infection before entering a nursing home from those who contracted an infection during their nursing home stay. Based on CMS's understanding of the OIG's methodology, the methodology may overestimate the number of infections and potentially misrepresents the extent of COVID-19 infection spread within nursing homes. For example, if a nursing home resident received a COVID-19 diagnosis before entering a nursing home and then had another claim or encounter record with a COVID-19 diagnosis upon entry to the nursing home during a surge, then OIG counted that resident in its figures as having COVID-19 in the nursing home, which does not tell CMS the critical information about the number of residents that *contracted* the infection while residing in the nursing home versus whether the resident contracted COVID-19 while residing elsewhere prior to entering the nursing home. CMS encourages OIG to determine the number of nursing home residents that contracted the virus prior to entering the nursing home and report on those separately so CMS can get a better understanding of the scope of OIG's findings. Different infection control and prevention interventions may be needed for nursing homes admitting residents with a pre-existing COVID-19 infection rather than nursing homes with residents who may have contracted COVID-19 during their nursing home stays, which CMS cannot determine without a full understanding of the scope, severity, and root cause of infections.

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[10] The Centers for Disease Control and Prevention, ICD-10-CM Official Coding and Reporting Guidelines, April 1, 2020 through September 30, 2020
[11] [11] The Centers for Disease Control and Prevention, ICD-10-CM Official Coding Guidelines - Supplement Coding encounters related to COVID-19 Coronavirus Outbreak, February 20, 2020
[12] CMS, The Impact of COVID-19 on Medicare Beneficiaries in Nursing Homes, 2021

OIG's recommendations and CMS's responses are below.

OIG Recommendation
Reexamine current nursing staff requirements and revise them as necessary.

CMS Response
CMS concurs with the intent of this recommendation but notes it is duplicative of our ongoing efforts announced in February 2022 as outlined in the President's initiative to improve the safety and quality of care in the nation's nursing homes.[13] Since that announcement, CMS published a Request for Information in April 2022 soliciting public comments on minimum staffing requirements to inform a staffing study design. CMS received over 3,000 comments from a variety of interested parties, including advocacy groups; long-term care ombudsmen; industry associations (providers); labor unions and organizations; nursing home staff and administrators; industry experts and other researchers; family members; and caretakers of nursing home residents. In August 2022, CMS launched a staffing study to support the establishment of minimum staffing levels.[14] CMS is assessing the level of nursing that is required to provide safe and high-quality care in nursing homes, which includes that facility's ability to prepare for and respond to infectious diseases. CMS notes that both nurse and non-nurse staffing roles are included during the study to make appropriate policy proposals in future rulemaking. CMS plans to issue its proposal for minimum staffing requirements in Spring 2023, and that proposal will go through the notice-and-comment rulemaking process—providing further opportunities for all interested parties to weigh in.

OIG noted that, when developing new minimum requirements, CMS needs to recognize the staffing challenges faced by nursing homes and consider what role it could play in strengthening the nursing home workforce. In addition to considering the industry's concerns received in response to the April Request for Information, CMS has already taken steps within its authority to support nursing homes in the retention and strengthening of their workforce. For example, in May 2020,[15] CMS first issued a toolkit for nursing homes outlining best practices ranging from infection control to workforce and staffing. This document is updated on a regular basis.[16] CMS has also issued Civil Money Penalty Reinvestment Program toolkits as resources to help nursing homes improve employee satisfaction and performance.[17] In addition, the White House Fact Sheet for improving nursing homes details other efforts CMS and other HHS agencies plan to take relating to the nursing home workforce.

CMS notes that OIG's analysis focused only on two statutory requirements relating to minimum nurse staffing hours and did not include a comprehensive review of CMS's staffing requirements for nursing homes. Federal staffing requirements are intended to work together to ensure appropriate staffing to care for the facility's resident population; for example, CMS has requirements for a facility assessment to determine what resources are necessary to care for its

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[13] The White House, FACT SHEET: Protecting Seniors by Improving Safety and Quality of Care in the Nation's Nursing Homes, February 23, 2022

[14] Centers for Medicare & Medicaid Services Staffing Study to Inform Minimum Staffing Requirements for Nursing Homes, August 22, 2022

[15] CMS Issues Nursing Homes Best Practices Toolkit to Combat COVID-19, May 13, 2020

[16] Toolkit on State Actions to Mitigate COVID-10 Prevalence in Nursing Homes, March 2022 (version 26)

[17] CMS Guide to Improving Nursing Home Employee Satisfaction

residents both for day-to-day operations and emergencies that accounts for the size and acuity of the resident population (42 C.F.R. §CFR §483.70(e)). As part of the staffing study, quantitative analyses will be conducted to identify staffing levels associated with improved quality of care and resident safety in nursing homes. In addition to analyses of the relationship between staffing and safety and quality care, CMS will also conduct descriptive analyses of staffing levels, examining trends in nursing home staffing from 2018 – 2021 and identifying specific factors that are related to staffing levels.[18]

As described above, CMS began implementation before the conclusion of this study and therefore requests that the OIG remove this recommendation.

OIG Recommendation
Improve how surveys identify infection control risks to nursing home residents and strengthen guidance on assessing the scope and severity of those risks.

CMS Response
CMS relies on CDC expertise and guidance to identify infection prevention and control best practices. CMS works closely with the CDC, and when infection control guidance is updated, CMS updates the guidance for the focused infection control survey process as necessary. At the start of the public health emergency, CMS prioritized focused infection control and immediate jeopardy surveys, allowing State Survey Agencies (SSA) to turn their focus on the most serious health and safety threats like infectious diseases and abuse. This shift in approach allowed SSAs to focus on addressing the spread of COVID-19. Survey inspections are only a point-in-time assessment of nursing homes' compliance, and so CMS shared the focused infection control survey tool with facilities to use as a voluntary self-assessment tool to review their own compliance with federal infection control requirements. The focused infection control survey continued to be revised to incorporate new infection control requirements to address the spread of COVID-19. CMS also revised the focused infection control survey to integrate it into the entire survey process. For surveys beginning after November 30, 2020, the probes of the focused infection control survey tool were combined with the Infection Control Facility Task Pathway and incorporated into the Long-Term Care Survey Process survey software.[19] This revised pathway is now used for all long-term care recertification surveys.

In June 2022, CMS released revised infection control guidance for surveyors related to the requirement for all nursing homes to have an Infection Preventionist (IP) who has specialized training to effectively oversee the facility's infection prevention and control program. CMS updated the State Operations Manual, including Appendix PP to provide additional guidance for infection prevention and control-related deficiencies, with the appropriate scope and severity

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[18] Centers for Medicare & Medicaid Services Staffing Study to Inform Minimum Staffing Requirements for Nursing Homes, August 22, 2022

[19] CMS, QSO-20-38-NH, : Interim Final Rule (IFC), CMS-3401-IFC, Additional Policy and Regulatory Revisions in Response to the COVID-19 Public Health Emergency related to Long-Term Care (LTC) Facility Testing Requirements, August, 26, 2020 and revised September 23, 2022

examples.[20] In addition, CMS urged providers to consider making changes to their physical environment and explore ways to reduce room occupancy.

Based upon the action CMS has already taken to review and update the infection control survey, which applies to the entire survey process, we request that the OIG remove this recommendation.

OIG Recommendation

Target nursing homes in most need of infection control intervention, and provide enhanced oversight and technical assistance to these facilities as appropriate.

CMS Response

CMS concurs with the intent of this recommendation but notes it is duplicative of our ongoing efforts. CMS agrees that, in addition to its role holding nursing homes accountable for compliance with the requirements, technical assistance to nursing homes that are in need of assistance is helpful, particularly during a public health emergency.

This is done in part through the ongoing work of the Quality Improvement Organizations. There has been a targeted focus on infection control by providing educational activities and assistance, including frontline training of nursing home staff and management on infection prevention practices to reduce the spread of infection and manage outbreaks effectively. These organizations also provide individualized training resources based on a nursing home's specific needs through toolkits, resource material, guides, webinars, and clinician office hours to provide expert consultation on the particular challenges nursing homes face.

Based upon the action CMS has taken to target nursing homes most in need of assistance, we request that the OIG remove this recommendation.

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[20] QSO-22-19-NH Revised Long-Term Care Surveyor Guidance: Revisions to Surveyor Guidance for Phase 2 & 3, Arbitration Agreement Requirements, Investigating Complaints & Facility Reported Incidents, and the Psychosocial Outcome Severity Guide. June 29, 2022

Acknowledgments

Jenell Clarke-Whyte served as the team leader for this study. Others in the Office of Evaluation and Inspections who conducted the study include Sarah Guyer. Office of Evaluation and Inspections staff who provided support include Joe Chiarenzelli and Robert Gibbons.

We would also like to acknowledge the contributions of other Office of Inspector General staff including Elina Breton and Christine Moritz.

This report was prepared under the direction of Jodi Nudelman, Regional Inspector General for Evaluation and Inspections in the New York regional office, and Nancy Harrison and Meridith Seife, Deputy Regional Inspectors General.

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To obtain additional information concerning this report, contact the Office of Public Affairs at Public.Affairs@oig.hhs.gov. OIG reports and other information can be found on the OIG website at oig.hhs.gov.

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ENDNOTES

[1] OIG, *COVID-19 Had a Devastating Impact on Medicare Beneficiaries in Nursing Homes During 2020*, OEI-02-20-00490, June 2021.

[2] CMS, *Independent Nursing Home COVID-19 Commission Findings Validate Unprecedented Federal Response*, September 16, 2020. Accessed at https://www.cms.gov/newsroom/press-releases/independent-nursing-home-covid-19-commission-findings-validate-unprecedented-federal-response on August 19, 2022.

[3] These 15,086 nursing homes included in our analysis each served at least 30 Medicare beneficiaries in 2020.

[4] OIG, *COVID-19 Had a Devastating Impact on Medicare Beneficiaries in Nursing Homes During 2020*, OEI-02-20-00490, June 2021.

[5] CMS announced at the end of April 2020 the formation of a new commission to assess the nursing home response to the pandemic and make recommendations to ensure that residents are protected from COVID-19. See CMS, *CMS Announces Independent Commission to Address Safety and Quality in Nursing Homes*, April 30, 2020. Accessed at https://www.cms.gov/newsroom/press-releases/cms-announces-independent-commission-address-safety-and-quality-nursing-homes on March 22, 2022. In May 2020, CMS issued a toolkit that included actions that States have taken to protect residents of nursing homes during the pandemic. See CMS, *CMS Issues Nursing Homes Best Practices Toolkit to Combat COVID-19*, May 13, 2020. Accessed at https://www.cms.gov/newsroom/press-releases/cms-issues-nursing-homes-best-practices-toolkit-combat-covid-19 on March 22, 2022. See also K. Yourish, K.K. Lai, D. Ivory, and M. Smith, "One-Third of All U.S. Coronavirus Deaths Are Nursing Home Residents or Workers," *The New York Times*, May 11, 2020. Accessed https://www.nytimes.com/interactive/2020/05/09/us/coronavirus-cases-nursing-homes-us.html?searchResultPosition=55 on July 5, 2022. M. Kwiatkowski, T. Nadolny, J. Priest, and M. Stucka, "'A national disgrace': 40,600 deaths tied to US nursing homes," *USA Today*, June 2, 2020. Accessed at https://www.usatoday.com/story/news/investigations/2020/06/01/coronavirus-nursing-home-deaths-top-40-600/5273075002/ on July 5, 2022.

[6] *Ibid*.

[7] M. Godoy, "CDC Acknowledges Coronavirus Can Spread Via Airborne Transmission," *NPR*, October 5, 2020. Accessed at https://www.npr.org/sections/health-shots/2020/10/05/920446534/cdc-acknowledges-coronavirus-can-spread-via-airborne-transmission on July 5, 2022. See also CDC, *CDC Museum COVID-19 Timeline*. Accessed at https://www.cdc.gov/museum/timeline/covid19.html on July 5, 2022. N. Greenfieldboyce, "For Scientists Who Study Virus Transmission, 2020 Was A Watershed Year," *NPR*, December 26, 2020. Accessed at https://www.npr.org/sections/health-shots/2020/12/26/946901965/for-scientists-who-study-virus-transmission-2020-was-a-watershed-year on July 5, 2020.

[8] One nursing home reached the threshold of having three-quarters or more of its beneficiaries diagnosed with COVID-19 or likely COVID-19 during both surges. Therefore, this nursing home is considered to have had extremely high infection rates during both surges.

[9] For more than half of the nursing homes with extremely high infection rates during the second surge, likely COVID-19 diagnoses accounted for less than 6 percent of their overall cases.

[10] From September 2020 to February 2022, CDC classified county-level COVID-19 transmission as low, moderate, substantial, or high. This classification was based on two indicators: 1) the total number of new cases per 100,000 persons during the past 7 days, and 2) the percentage of Nucleic Acid Amplification Test results that are positive during the past 7 days. See Methodology for more detailed information on community transmission. See also CDC, *Indicators for Monitoring COVID-19 Community Levels and COVID-19 and Implementing COVID-19 Prevention Strategies, Overview and Scientific Rationale*, p. 3. Accessed at https://www.cdc.gov/coronavirus/2019-ncov/downloads/science/Scientific-Rationale-summary-COVID-19-Community-Levels.pdf on March 22, 2022.

[11] This analysis includes only counties that contain one or more nursing homes.

[12] This analysis includes only counties that contain one or more nursing homes.

[13] Social Security Act § 1864(a); 42 CFR § 488.330; CMS, *State Operations Manual,* Ch. 1, §1002. See also Social Security Act § 1819(g)(2)(A)(iii); 42 CFR § 488.308. State agencies are also required to conduct surveys to investigate complaints related to Federal participation requirements.

[14] 42 CFR § 488.301; CMS, *State Operations Manual*, Ch. 5, §5300; 42 CFR § 488.332.

[15] CMS, *State Operations Manual*, Ch. 7, §7400.3.1.

[16] CMS, *Prioritization of Survey Activities*, *Admin Info: QSO-20-20-All*, March 20, 2020.

[17] Social Security Act § 1864(a); 42 CFR § 488.330; CMS, *State Operations Manual*, Ch. 1, §1002. In addition, CMS conducts onsite validation surveys of a representative sample of nursing homes in each State to assess the adequacy of surveys conducted by the State agencies. See CMS, *State Operations Manual*, Ch. 4, §4157.

[18] 42 CFR § 483.80(b).

[19] CMS, *Prioritization of Survey Activities*, *Admin Info: QSO-20-20-All*, March 20, 2020.

[20] We determined whether nursing homes had been cited with one of four infection control deficiencies during any of their surveys in 2020, including COVID-19-focused infection control surveys. These deficiencies included: (1) F880 (infection prevention and control); (2) F882 (infection preventionist qualifications and role); (3) F885 (reporting to residents, representatives, and families); and (4) F886 (COVID-19 testing for residents and staff). See Methodology for more information about the analysis of deficiencies.

[21] We considered deficiencies with a scope and severity level of F or above to be serious. A scope and severity level of G-L constitutes actual harm. Specifically, these deficiencies constitute actual harm that is not immediate (G-I) or immediate jeopardy to resident health or safety (J-L). In addition, a scope and severity level of F constitutes noncompliance with the participation requirements that is determined to be widespread. See Methodology for more information about the analysis of deficiencies. See also CMS, *State Operations Manual,* Ch. 7, §7400.3.1.

[22] OIG, *Onsite Surveys of Nursing Homes During the COVID-19 Pandemic: March 23-May 30, 2020*, OEI-01-20-00430, December 2020.

[23] 42 CFR § 483.35(a)(1)(i) and § 483.35(b).

[24] *Ibid.*

[25] See 42 CFR § 483.35. Nursing homes are required to have sufficient nursing staff with the appropriate competencies sets to provide nursing and related services to meet resident safety and maintain the well-being of each resident while considering the number, acuity, and diagnoses of a nursing home's resident population. CMS does not set specific requirements on the quantity of nursing staff beyond the minimal thresholds required for registered nurses and licensed nurses, 8 consecutive hours per day and 24 hours per day, respectively.

[26] Omnibus Budget Reconciliation Act of 1987, H.R. 3545, 100th Congress, 1987. Accessed at https://www.congress.gov/bill/100th-congress/house-bill/3545 on March 22, 2022.

[27] 42 CFR § 483.35(a)(1)(i) and § 483.35(b). CMS assesses compliance with Federal staffing requirements through the survey and certification process. Payroll Based Journal (PBJ) data have certain limitations which mean that these data cannot be used to assess compliance with Federal requirements. Therefore, we determined whether a nursing home reported staffing in the PBJ system that was consistent with the Federal staffing requirements, but we did not state whether the nursing home was or was not in compliance with Federal requirements. Nursing homes that reported staffing levels at or above requirements at least 90 percent of days were considered to report these levels "almost all of the time." See Methodology for more detailed

information about the staffing analysis. See also CMS, *Payroll Based Journal Methodology*. Accessed at https://data.cms.gov/resources/payroll-based-journal-methodology on June 10, 2022.

[28] See OIG, *Some Nursing Homes' Reported Staffing Levels in 2018 Raise Concerns; Consumer Transparency Could Be Increased*, OEI-04-18-00450, August 2020. See also OIG, *CMS Use of Data on Nursing Home Staffing: Progress and Opportunities To Do More*, OEI-04-18-00451, March 2021. These studies prompted CMS to begin publishing information on weekend nurse staffing and nurse turnover on Care Compare and incorporate these measures into the Nursing Home Five Star Quality Rating System. See CMS, *Nursing Home Staff Turnover and Weekend Staffing Levels, QSO-22-08-NH*, January 7, 2022.

[29] For all nursing homes, we calculated the average total nursing hours per resident per day (HPRD) over three quarters in 2020 (Q2 through Q4 2020). This analysis does not assess the average HPRD during the specific surge periods. For both surges, we compared the average total nursing HPRD during 2020 for nursing homes with extremely high infection rates to the average HPRD for other nursing homes. See Methodology for more detailed information about the staffing analysis.

[30] 42 CFR § 483.35(a)(1)(i) and § 483.35(b).

[31] The White House, *FACT SHEET: Protecting Seniors by Improving Safety and Quality of Care in the Nation's Nursing Homes*, February 28, 2022. Accessed at https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/28/fact-sheet-protecting-seniors-and-people-with-disabilities-by-improving-safety-and-quality-of-care-in-the-nations-nursing-homes/ on April 7, 2022.

[32] Office of the Assistant Secretary for Planning and Evaluation (ASPE), *COVID-19 Intensifies Nursing Home Workforce Challenges*, October 2020. Accessed at https://aspe.hhs.gov/reports/covid-19-intensifies-nursing-home-workforce-challenges-0?msclkid=f7a72701cfe111ec9a050b932b26e1c2 on May 6, 2022. See also J. Abbasi, "'Abandoned' Nursing Homes Continue to Face Critical Supply and Staff Shortages as COVID-19 Toll Has Mounted," *JAMA*, June 11, 2020. Accessed at https://jamanetwork.com/journals/jama/fullarticle/2767282 on May 6, 2022. The National Academies of Sciences, Engineering, and Medicine, *The National Imperative to Improve Nursing Home Quality: Honoring Our Commitment to Residents, Families, and Staff*, 2022. Accessed at https://nap.nationalacademies.org/catalog/26526/the-national-imperative-to-improve-nursing-home-quality-honoring-our on May 3, 2022. R. Chatterjee, "The pandemic pummeled long-term care – it may not recover quickly, experts warn," *NPR*, February 22, 2022. Accessed at https://www.npr.org/sections/health-shots/2022/02/22/1081901906/the-pandemic-pummeled-long-term-care-it-may-not-recover-quickly-experts-warn on May 6, 2022. S. Quinton, "Staffing Nursing Homes Was Hard Before the Pandemic. Now It's Even Tougher," *Stateline, Pew Charitable Trusts*, May 18, 2020. Accessed at https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2020/05/18/staffing-nursing-homes-was-hard-before-the-pandemic-now-its-even-tougher on May 9, 2022.

[33] Kaiser Family Foundation, *Nursing Facility Staffing Shortages During the COVID-19 Pandemic*, April 4, 2022. Accessed at https://www.kff.org/coronavirus-covid-19/issue-brief/nursing-facility-staffing-shortages-during-the-covid-19-pandemic/?msclkid=98f045f5cfe211ecbb9431a72045684a on May 2, 2022. See also American Health Care Association and National Center for Assisted Living, *State of the Long Term Care Industry: Survey of nursing home and assisted living providers show industry facing significant workforce crisis*, September 2021. Accessed at https://www.ahcancal.org/News-and-Communications/Fact-Sheets/FactSheets/Workforce-Survey-September2021.pdf on May 6, 2022.

[34] The National Academies of Sciences, Engineering, and Medicine, *The National Imperative to Improve Nursing Home Quality, Honoring Our Commitment to Residents, Families, and Staff*, 2022. Accessed at https://nap.nationalacademies.org/catalog/26526/the-national-imperative-to-improve-nursing-home-quality-honoring-our on May 3, 2022. See also ASPE, *COVID-19 Intensifies Nursing Home Workforce Challenges*, October 18, 2020. Accessed at https://aspe.hhs.gov/reports/covid-19-intensifies-nursing-home-workforce-challenges-0?msclkid=f7a72701cfe111ec9a050b932b26e1c2 on May 6, 2022. L. Romero, "Pandemic, labor shortages have left long-term care facilities competing for staff," *ABC News*, August 19, 2021. Accessed at https://abcnews.go.com/US/pandemic-labor-shortages-left-long-term-care-facilities/story?id=79508224 on May 6, 2022.

[35] R. Tan, "Low-wage workers prop up the nursing home industry. They're quitting in droves," *The Washington Post*, January 22, 2022. Accessed at https://www.washingtonpost.com/dc-md-va/2022/01/23/nursing-home-dc-staffing-omicron/ on May 9, 2022.

[36] The White House, *FACT SHEET: Protecting Seniors by Improving Safety and Quality of Care in the Nation's Nursing Homes*, February 28, 2022. Accessed at https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/28/fact-sheet-protecting-seniors-and-people-with-disabilities-by-improving-safety-and-quality-of-care-in-the-nations-nursing-homes/ on April 7, 2022.

[37] Omnibus Budget Reconciliation Act of 1987, H.R. 3545, 100th Congress, 1987. Accessed at https://www.congress.gov/bill/100th-congress/house-bill/3545 on March 22, 2022.

[38] The White House, *FACT SHEET: Protecting Seniors by Improving Safety and Quality of Care in the Nation's Nursing Homes*, February 28, 2022. Accessed at https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/28/fact-sheet-protecting-seniors-and-people-with-disabilities-by-improving-safety-and-quality-of-care-in-the-nations-nursing-homes/ on April 7, 2022. In August 2022, CMS launched the staffing study called for by the administration. CMS stated that the study would include a literature review, site visits to nursing homes, quantitative analyses, and cost analyses. See CMS, *Centers for Medicare & Medicaid Services Staffing Study to Inform Minimum Staffing Requirements for Nursing Homes*, August 22, 2022. Accessed at https://www.cms.gov/blog/centers-medicare-medicaid-services-staffing-study-inform-minimum-staffing-requirements-nursing-homes on January 9, 2023.

[39] See CMS, *Revised Long-Term Care Surveyor Guidance: Revisions to Surveyor Guidance for Phases 2 & 3, Arbitration Agreement Requirements, Investigating Complaints & Facility Reported Incidents, and the Psychosocial Outcome Severity Guide: QSO-22-19-NH*, June 29, 2022. CMS recently added new guidance for surveyors to incorporate the use of PBJ staffing data to investigate potential noncompliance with CMS's nurse staffing requirements. This guidance became effective October 2022.

[40] Previous OIG work that focused on the survey process early in the pandemic recommended that CMS evaluate the effectiveness of focused infection control surveys and revise as appropriate. CMS has since integrated content from the focused infection control survey into its standard survey. See OIG, *Onsite Surveys of Nursing Homes During the COVID-19 Pandemic: March 23-May 30, 2020*, OEI-01-20-00430, December 2020. Other OIG work has focused on CMS's oversight of State survey agencies' performances in conducting nursing home surveys. See OIG, *CMS Should Take Further Action to Address States with Poor Performance in Conducting Nursing Home Surveys*, OEI-06-19-00460, January 2022.

[41] CMS issued a memo outlining several updates CMS made to the State Operations Manual, Appendix PP, effective October 24, 2022. See CMS, *Revised Long-Term Care Surveyor Guidance: Revisions to Surveyor Guidance for Phases 2 & 3, Arbitration Agreement Requirements, Investigating Complaints & Facility Reported Incidents, and the Psychosocial Outcome Severity Guide: QSO-22-19-NH,* June 29, 2022. Among these updates, CMS provided additional guidance for categorizing deficiencies related to infection prevention and control (IPC). The new guidance includes examples of deficiencies at each of the four severity levels for a set of the IPC deficiencies. See also CMS, *State Operations Manual*, Appendix PP.

[42] These beneficiaries include those diagnosed in a nursing home as well as those diagnosed in a hospital or other care setting after being transferred from a nursing home.

[43] We identified these periods based on our analysis for the OIG report *COVID-19 Had a Devastating Impact on Medicare Beneficiaries in Nursing Homes During 2020*, OEI-02-20-00490, June 2021.

[44] We count only the first diagnosis of COVID-19 or likely COVID-19 during a nursing home stay. Furthermore, if a beneficiary was diagnosed during a given surge with likely COVID-19 and later during the surge was diagnosed with COVID-19, we considered that beneficiary to be diagnosed with COVID-19 as opposed to likely COVID-19.

[45] We categorized nursing homes as "small" if they had 50 or fewer certified beds, "medium" if they had 51 to 150 certified beds, and "large" if they had more than 150 certified beds.

[46] Counties designated by the Office of Management and Budget as included in metropolitan statistical areas are considered urban counties. All other counties, including those located in micropolitan statistical areas, are considered rural counties. See Census Bureau, *Delineation Files, Core based statistical areas (CBSAs), metropolitan divisions, and combined statistical areas (CSAs)*. Accessed at https://www.census.gov/geographies/reference-files/time-series/demo/metro-micro/delineation-files.html

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on September 23, 2021. See also Health Resources and Services Administration, *Defining Rural Population*. Accessed at https://www.hrsa.gov/rural-health/about-us/definition/index.html on March 14, 2022.

[47] We determined the overall mortality of Medicare nursing home beneficiaries, not just those with COVID-19.

[48] These beneficiaries include those who died in a nursing home, as well as those who died in a hospital or other health care setting such as hospice, after being transferred from a nursing home.

[49] USAFacts, *US COVID-19 cases and deaths by state*. Accessed at https://usafacts.org/visualizations/coronavirus-covid-19-spread-map on September 21, 2021. These data are collected from State and local public health agencies and CDC.

[50] We adapted CDC's definition of COVID-19 community transmission levels, which was in use from September 2020 to February 2022. Using this definition, we classified counties as having "low" transmission if they had 0 to 9.99 new COVID-19 cases per 100,000 persons over an average of 7 days during a surge period, "moderate" as 10 to 49.99, "substantial" as 50 to 99.99, and "high" as greater than or equal to 100. For more information, see CDC, *Indicators for Monitoring COVID-19 Community Levels and COVID-19 and Implementing COVID-19 Prevention Strategies, Overview and Scientific Rationale*, p. 3. Accessed at https://www.cdc.gov/coronavirus/2019-ncov/downloads/science/Scientific-Rationale-summary-COVID-19-Community-Levels.pdf on March 22, 2022.

[51] These deficiencies included: (1) F880 (infection prevention and control); (2) F882 (infection preventionist qualifications and role); (3) F885 (reporting to residents, representatives, and families); and (4) F886 (COVID-19 testing for residents and staff). We examined these four deficiencies because they are related to the prevention and treatment of COVID-19 and were in effect during the study period.

[52] Standard surveys are periodic, resident-centered inspections designed to gather information about the quality of service furnished in a facility to determine compliance with the requirements of participation. See 42 CFR § 488.301. Focused infection control surveys were introduced during the COVID-19 pandemic and designed specifically to determine compliance with infection control. See also CMS, *Prioritization of Survey Activities, QSO-20-20-All*, March 20, 2020. In addition to these surveys, we also reviewed surveys that were conducted in response to a complaint, as well as Federal Monitoring Surveys and limited-scope surveys, such as those conducted to assess a nursing home's Quality Assurance and Performance Improvement program.

[53] CMS's scope and severity rating system is used by State agencies when conducting surveys of nursing homes. For each deficiency, the surveyors determine the level of harm to the resident(s) involved (severity) and the number of residents potentially or actually affected within the nursing home (scope). The surveyors then assign an alphabetic scope and severity value, A through L, to the deficiency. A-rated deficiencies are the least serious and L-rated deficiencies are the most serious. See CMS, *State Operations Manual,* Ch. 7, §7400.3.1.

[54] CMS waived the requirements for nursing homes to submit staffing data through the PBJ system for the first quarter 2020. See CMS, *COVID-19 Emergency Declaration Blanket Waivers for Health Care Providers*, p. 16. Accessed at https://www.cms.gov/files/document/covid-19-emergency-declaration-waivers.pdf on April 14, 2022. We included nursing homes in this analysis if they had at least two quarters of data from Q2 through Q4 in the PBJ.

[55] 42 CFR § 483.35(a)(1)(i) and § 483.35(b).

[56] 42 CFR 483.70(q). Nursing homes must electronically submit these data.

[57] See CMS, *Electronic Staffing Data Submission Payroll-Based Journal, Long-Term Care Facility Policy Manual* (pp. 2-5 and 2-6). Accessed at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/PBJ-Policy-Manual-Final-V25-11-19-2018.pdf on June 10, 2022. This guidance indicates that each 8-hour shift should include a 0.5-hour meal break that is not reported to the PBJ. See also, CMS, *Design for* Care Compare *Nursing Home Five-Star Quality Rating System: Technical Users' Guide*. Accessed at https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/downloads/usersguide.pdf on June 10, 2022. RN hours include hours from RNs, the RN director of nursing, and RNs with administrative duties. Licensed nurse hours include hours from LPNs/LVNs, LPNs/LVNs with administrative duties, and any type of RN hours noted above.

[58] To do this, CMS uses daily staffing data reported to the PBJ as well as information on the number of residents from the MDS. See CMS, *Design for* Care Compare *Nursing Home Five-Star Quality Rating System: Technical Users' Guide*. Accessed at https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/downloads/usersguide.pdf on June 10, 2022.

[59] CMS includes the HPRD values in the Provider Information files contained in the Provider Data Catalog. The Provider Information file reflects the information presented on Care Compare. See CMS, *Nursing homes including rehab services data archive*. Accessed at https://data.cms.gov/provider-data/archived-data/nursing-homes on May 26, 2021.

[60] We averaged the quarterly adjusted total nursing HPRD measure published by CMS. We included nursing homes in this analysis that had adjusted total nursing HPRD values in CMS's Provider Information files from at least two quarters during the period Q2 through Q4 2020.

[61] CMS, *Payroll Based Journal Methodology*. Accessed at https://data.cms.gov/resources/payroll-based-journal-methodology on June 10, 2022.