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English care home staff morale and preparedness during the Covid pandemic: A longitudinal analysis

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Conflict of interest
All authors declare that we have no conflict of interest.

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KL, DB, IL, AK, SO and SM secured funding. All authors contributed to survey design. KL, DB, JB and LW designed advertisements and coordinated recruitment advertisements which were further amplified and redistributed by JB, DB, AK and SM. DB, JB, IL, KL and SO designed analysis. JB managed the survey platform, extracted and cleaned data. JB wrote the first draft, undertook statistical analysis and assembled revisions with comments from all authors. All authors approve of this manuscript.

English care home staff morale and preparedness during the Covid pandemic: A longitudinal analysis

Abstract

BACKGROUND

Staff actions to prevent infection introduction and transmission in long-term care facilities (LTCFs) were key to reducing morbidity and mortality from COVID-19. Implementing infection control measures (ICMs) requires training, adherence and complex decision making while trying to deliver high quality care. We surveyed LTCF staff in England about their preparedness and morale at three timepoints during the COVID-19 epidemic.

METHODS

Online structured survey targeted at LTCF workers (any role) administered at three timepoints (November 2020-January 2021; August-November 2021; March-May 2022). Narrative summary of answers, narrative and statistical summary (proportionality with Pearson's chi-square or Fisher's Exact Test) of possible differences in answers between waves.

RESULTS

Across all three survey waves, 387 responses were received. Morale, attitudes towards working environment and perception about colleague collaboration were mostly positive at all survey points. Infection control training was perceived as adequate. Staff felt mostly positive emotions at work. The working environment remained challenging. Masks were the single form of PPE most consistently used; eye protection the least used. Mask-wearing was linked to poorer communication and resident discomfort as well as mild negative health impacts on many staff, such as dehydration and adverse skin reactions. Hand sanitiser caused skin irritation.

CONCUSIONS

Staff morale and working practices were generally good even though the working environment provided many new challenges that did not exist pre-pandemic.

Keywords: Infection control measures ; COVID-19; long-term care facility; Personal Protective Equipment

Highlights

- Good morale and positive attitudes about work were reported by a majority at all time points
- Nonetheless, PPE use and other infection prevention measures were challenging and made the job harder
- Most staff felt well trained and competent to follow recommendations to prevent COVID-19 transmission
- A majority felt there was good support from their managers and colleagues to prevent COVID-19

English care home staff morale and preparedness during the COVID pandemic: A longitudinal analysis

Introduction

Advanced age is the risk factor most associated with morbidity or mortality caused by COVID-19 [1, 2]. About 4% of all persons age 65+ and 15% of persons age 85+ in the United Kingdom (UK) live in a residential long-term care facility (LTCF) [3]. It became clear early in the COVID pandemic that such residential facilities would become high-risk settings for COVID morbidity and/or mortality [4, 5]. In response, the UK government pledged to "throw a protective ring" around LTCFs to keep residents safe. How effectively this promise was realised has been much scrutinised [6-9].

COVID caused long-existing problems in the long-term care sector to come into sharp focus [10]. LTCF staff had the simultaneous challenge of maintaining LTCFs as *homes* for persons with high care needs, whilst implementing infection prevention and control (IPC) measures for an unfamiliar disease. Staff had to acquire new skills [11] and change working practices [12], almost daily, as official IPC guidance was developed by many different regulatory bodies and was revised frequently [9, 13]. These changes happened to a workforce where staff shortages and high turnover are common, pay is relatively low [14], many have insecure employment contracts and poor career development or training opportunities [15]. Recruitment difficulties are chronic in the care sector [16]. The work can be physically demanding and is organised in long shifts. The British care sector as a whole is long considered to be under-funded and under-resourced with complex governance that leads to entrenched inefficiencies in multiple domains and poor strategic understanding [8]. Nonetheless, the social care workforce has steadily grown since 2012, comprising an estimated 1.54 million persons in the UK in 2021 [14].

Three times between late 2020 and early 2022, we administered a structured survey to British LTCF staff about their working environment (author names suppressed, 2021). Questions focused on aspects of their morale (feelings and attitudes related to their work) and their IPC challenges and practices. Monitoring LTCF staff morale was a major concern in the UK COVID epidemic; it was widely acknowledged that effective IPC in LTCFs was very reliant on the efforts and goodwill of staff [13, 17]. Concurrently, responsibility for health policy and COVID response was devolved to each constituent UK nation. Our survey respondents in all three waves overwhelmingly came from individuals based in England hence we subsequently describe the results with reference to the concurrent COVID epidemic and regulatory context in England. These data enable us to report a

longitudinal analysis of LTCF staff morale and work practices during the first two years of the COVID epidemic in England.

Methods

For each of the three surveys, we aimed to recruit staff working in any role in LTCFs for older people. We advertised nationally using social media (Facebook, Twitter), e-newsletters aimed at LTCF staff, professional and practitioner contacts and distribution lists. The survey was advertised at least twice for each wave on each channel (Facebook, Twitter, each of two possible departmental bulletins, and 18 professional contacts/distribution lists on email, many of whom cascaded the advert downwards through other networks). Facebook and Twitter adverts originating from our university departments were retweeted by ourselves, collaborators and other colleagues and professional contacts. We advertised the survey in university departments because many students undertake care work as part of work experience, training and for income. Wave 1 was conducted 24 Nov 2020 to 31 Jan 2021; Wave 2: 1 August-30 Nov 2021 and Wave 3: 1 March-15 May 2022. Wave 1 advertisement was especially amplified (retweets, shares, shared with additional professional networks) by the NIHR Health Protection Unit in Emergency Preparedness.

Ethical approval for this study was granted by the suppressed name (2020-2022). Survey questions were developed with public and participant involvement (PPI) and input from an Advisory Group. Advisors were recruited through professional and personal contact networks and commented on question understandability, appropriateness, and speed of survey completion. PPI advisors (n=3) included junior LTCF staff (not otherwise involved in the research) and a colleague with recent experience as a healthcare assistant in hospitals. Members of the Advisory Group (n= 5) had concurrent experiences of having relatives in a LTCF, as director of a national care provider and working as an advanced nurse practitioner or epidemiologist supporting LTCFs in outbreak response.

For Wave 1, survey questions were informed by the Queen's Nursing Institute survey (Queen's Nursing Institute, 2020), a survey on PPE adherence [18], our own previous experience writing surveys (author names suppressed, 2020) and feedback from current LTCF staff. Some minor changes in exact question wording and answer options were made between survey waves following discussions within the research team and Advisory Group about concurrent information needs. Questions were about

demographic information (gender, age-band, ethnicity in waves 2 and 3);

employment (UK region of workplace, job role(s), years of experience working in LTCFs, shifts per week, how many LTCFs worked in during previous four months, additional employment where personal care may have been given);

habitual usage of personal protective equipment (PPE);

practical challenges when using PPE, *IPC training*; and

morale and feelings

Specific between-wave variations in questions were asking about "eye protection" (Wave 1) while Wave 2-3 respondents were asked about goggles and face shields. This revision was made because we became more aware of the variety of eye protection available. The option to "neither agree or disagree" was removed from the second and third surveys for IPC and PPE challenges to try to reduce survey length and prompt participants to make a more interpretable answer. Respondents in Waves 2 and 3 (but not 1) were asked about training in IPC, dehydration possibly linked to use of PPE, and had the option of leaving an open text response about any aspects of IPC they wished to comment on.

LTCF staff often have multiple recent roles on different shifts, such as kitchen work one day and care work another. We therefore identified summary job categories: persons who had worked as senior care workers or managers at least sometimes, persons who had delivered personal care but never as a senior/manager; persons who never delivered personal care. It is important to say that senior care workers are still care workers providing care work, as well as having a much wider range of duties and responsibility, including for operational decisions and facility administration. Previously (Wave 1 ; author names suppressed 2021) we stratified responses by these three predominant job categories, age groupings and gender, but found relatively little variation in Wave 1 responses between these groups so do not stratify by demographic traits in this longitudinal analysis.

We offered a small reward (digital shopping voucher) to make the survey more appealing to a low-paid, hard-to-reach demographic. Responses to all three waves were checked carefully for 'fake respondent' ("Bot") answers. Attention check questions were included in all waves. The attention check question was adequate to identify possibly inattentive or insincere respondents in Wave 1, but in Wave 2 many Bot respondents answered the attention check question correctly. The Wave 3 survey therefore had an additional question that required cognition skills that we hoped would help identify automated false answers. We found with each wave that Bot algorithms improved and made it harder to identify these simulated answers. This accords with other recent experiences of

weeding out Bot answers in public, online surveys (the Bots get better at evading detection over time) [19, 20]. Our quality control to remove false respondents was multi-stage. Briefly, in addition to failing attention check and/or cognitive check questions, we found that many Bot open-text answers were written in non-sensical slogans. Bot answers were also identified and removed for being in obvious time clusters and having identical format contact details, including strange email addresses (with distinctive format patterns). More details about the steps we had took to remove false responses in Waves 2 and 3 are described elsewhere (author names suppressed 2021).

The survey questions are available as supplemental file 1 (Wave 3 version). The open text comments and statistics drawn from the survey questions are reported here in narrative summary and between wave narrative and statistical comparisons. Statistical comparisons were undertaken in Stata version 17.0, using tests for proportionality, either Pearson's chi-squared or Fisher's Exact Test (FET). FET is appropriate instead of Pearson chi-square when one or more cell counts are below 5. Comparisons were between any two waves (e.g., Wave 1 versus Wave 2 or Wave 3, and Wave 2 versus Wave 3 distribution of answers). For one set of questions (about IPC challenges) slightly agree / neither agree nor disagree / slightly disagree answer counts were pooled in the proportionality statistical tests. Statistical comparisons with p-value < 0.05 were considered significantly different and are highlighted in results.

Results

Answer counts were Wave 1: 238, Wave 2: 115, Wave 3: 34. A definitive response rate to each Wave is impossible to estimate because of the social media/newsletter nature of the advertising, however it seems likely that a large number of persons were exposed to the advertising but did not fill in the survey and thus the response rate in all waves was relatively low. Counts of weekly survey respondents is shown in the figure in supplemental file 2, where we also show concurrent weekly count in England of deaths within 28 days of a COVID+ test, and time points when four variants of concern (VoC: alpha, delta and omicron 1 and 2) became dominant among sequenced swab samples of COVID-positive patients. Relevant to when the survey waves were answered, information about COVID mortality in England (where overwhelming majority of respondents were located) and VoC were much publicised via daily announcements and probably influenced public mood as well as IPC guidelines that LTCF staff had to implement.

Table 1 shows demographic information for the survey respondents in each wave. Respondents were mostly female and had at least 5 years experience working in LTCFs. This compares to average years of experience in the social care sector being nine [14]. Representation of staff with ≥ five years

experience working in homes declined between Waves, and was significantly different between Wave 1 and Wave 3. The percentages of respondents who had worked at least 5 shifts/week was significantly higher in the first than second or third waves, from 68% to 59% or 38%. This reduction in full time LTCF staff may correspond to staff shortages at the height of the pandemic, or with other job opportunities as COVID-related restrictions were increasingly lifted in the UK from early 2021 onwards and national labour shortages that arose in late 2021 [21]. Managers/senior care workers were the largest occupational group in each wave, but significantly more respondents were senior care workers or manager in the first survey wave than in subsequent waves. Significantly more staff reported working in multiple LTCFs in the 2021-22 surveys than in the (first) 2020-21 survey. A minority, but rising-over-time, percentage of respondents had paid or volunteer work with other types of vulnerable people (not LTCFs), from 16% to 32%. This proportional difference was only significantly different between first and third survey Waves. Common examples of other settings where respondents worked or volunteered were hospitals, hospices, rehabilitation centres, (pre)schools and on student placements. Supplemental file 3 lists other settings and contexts where respondents described working/volunteering in a way that involved providing personal care, in addition to their paid roles in the LTCF sector.

Geographic distributions of respondent locations are shown in the figure in supplemental file 4. Most respondents in all waves came from southern and eastern England, with very little representation outside of England. Between 44% and 53% of respondents were age 45 and under, which concords well with recent estimates that the average age of staff in the care sector is 44 years [14]. The distributions of respondent ages were significantly different between the first and second or third survey Waves, although the differences are not simple (such as generally older or younger).

Table 1. Demographic traits of survey respondents: n, %

	Wave 1, ∑=238	Wave 2, ∑=115	Wave 3, ∑=34
Female [X, F]	**199, 84%***	**88, 77%***	30, 88%
White British [X]	na	95, 83%	29, 88%
Worked in LTCF ≥ 5 years [X]	**171, 72%***	71, 62%	**18, 53%***
Worked 5+ LTCF shifts/week [X]	**162, 68%****	68, 59%	13, 38%
Worked in any other LTCF [X]	**18, 8%****	20, 18%	9, 26%
Recent paid or volunteer work in other (not CH) settings with vulnerable people [X]	**38, 16%***	22, 19%	**11, 32%***
Age [F]			
18-25 years	**44, 18%****	13, 11%	4, 12%
26-35 years	22, 9%	22, 19%	13, 38%
36-45 years	39, 16%	23, 20%	1, 3%
46-55 years	62, 26%	34, 30%	11, 32%
56-65 years	62, 26%	21, 18%	5, 15%
age 65+	9, 4%	2, 2%	0, 0%
Job Roles [X]			
Senior/Manager sometimes	**164, 69%****	64, 56%	15, 44%
Junior CW, never senior/manager	**53, 22%****	32, 28%	10, 29%
Other LTCF staff	21, 9%	19, 16%	9, 26%

Notes: na : not available, question was not posed in that survey wave. * : significantly different from one other survey wave at threshold $p < 0.05$; ** : significantly different from 2 other waves. Superscripts denote between group test applied to look for significant difference between any two survey waves. [F] Fisher Exact Test, [X] Chi-square test.

Feelings

Table 2 shows percentages of respondents that reported frequency of experiencing specific feelings recently at work, separated by survey wave. There is a great deal of consistency in how much respondents reported having each feeling. Being tired was common and few agreed that they felt energised. Only a minority tended to report especially negative emotions (scared, anxious, angry) often or constantly. A majority of respondents were often or constantly happy, satisfied or feeling rewarded in all three survey waves. There was no statistically significant difference between survey Waves.

Table 2. Frequency of specific feelings experienced recently at work: n, %

Satisfied [F,X]	W1	W2	W3	*Angry* [F]	W1	W2	W3
Constantly	24, 10%	12, 10%	3, 9%	Constantly	3, 1%	3, 3%	0, 0%
Often	111, 47%	52, 45%	17, 50%	Often	44, 19%	19, 17%	8, 24%
Sometimes	89, 37%	45, 39%	14, 41%	Sometimes	108, 46%	68, 59%	16, 47%
Not at all	14, 6%	6, 5%	0, 0%	Not at all	81, 34%	25, 22%	10, 29%
Relaxed [F]	W1	W2	W3	*Tired* [F]	W1	W2	W3
Constantly	3, 1%	3, 3%	2, 6%	Constantly	51, 22%	30, 26%	9, 26%
Often	68, 29%	32, 28%	11, 32%	Often	114, 48%	52, 45%	14, 41%
Sometimes	120, 50%	54, 47%	12, 35%	Sometimes	65, 28%	29, 25%	10, 29%
Not at all	45, 19%	26, 23%	9, 26%	Not at all	8, 3%	4, 3%	1, 3%
Happy [F,X]	W1	W2	W3	*Scared* [F,X]	W1	W2	W3
Constantly	9, 4%	10, 9%	4, 12%	Constantly	19, 8%	7, 6%	2, 6%
Often	125, 53%	52, 45%	17, 50%	Often	43, 18%	21, 18%	3, 9%
Sometimes	96, 40%	47, 41%	12, 35%	Sometimes	112, 47%	47, 41%	19, 56%
Not at all	6, 3%	6, 5%	1, 3%	Not at all	64, 27%	40, 35%	10, 29%
Rewarded [F,X]	W1	W2	W3	*Sad* [F,X]	W1	W2	W3
Constantly	64, 27%	26, 23%	6, 18%	Constantly	13, 6%	5, 4%	0, 0%
Often	103, 43%	42, 37%	18, 53%	Often	66, 28%	33, 29%	8, 24%
Sometimes	61, 26%	42, 37%	10, 29%	Sometimes	127, 54%	60, 52%	22, 65%
Not at all	10, 4%	5, 4%	0, 0%	Not at all	32, 14%	17, 15%	4, 12%
Energised [F,X]	W1	W2	W3	*Anxious* [F,X]	W1	W2	W3
Constantly	12, 5%	5, 4%	2, 6%	Constantly	27, 11%	12, 10%	3, 9%
Often	62, 26%	34, 30%	9, 26%	Often	61, 26%	28, 24%	11, 32%
Sometimes	120, 50%	51, 44%	18, 53%	Sometimes	120, 51%	57, 50%	18, 53%
Not at all	44, 18%	25, 22%	5, 15%	Not at all	28, 12%	18, 16%	2, 6%

Notes: Superscripts denote between group test(s) applied to look for significant difference between any two survey waves. [F] Fisher Exact Test, [X] Chi-square test.

Morale and attitudes

Table 3 indicates agreement respondents had with specific aspects of morale and IPC issues at their workplace. Most were inclined to remain working in the care sector and did not contemplate working for a different LTCF, although the proportions were sometimes significantly different between Waves. Over time, there was a non-significant declining appetite to see IPC measures increase, and significant difference between first and second wave with regard to desire to see reduced IPC measures at the LTCF. A majority of respondents found their job challenging but satisfying often or constantly. A majority reported that they worked well with colleagues to prevent

COVID most of the time and most felt that their manager had been supportive often or constantly. Although the strength of perceived manager support declined over time, it was not significantly different between survey waves.

IPC Challenges

We asked about specific challenges that staff might face when implementing IPC measures or that could undermine their commitment to maintain IPC measures, such as if wearing masks gave them skin problems, or if they felt frustrated by people who didn't socially distance. Results are in Table 4.

There were only significant differences (at $p < 0.05$) in the answers about normal social life (for respondent) and frustration about other people not social distancing adequately, specifically between Wave 1 and Waves 2 and/or 3. Respondents felt more strongly that their social life could not be normal and felt more frustration with others for their lack of social distancing in Wave 1 than in subsequent waves. This result maybe reflects concurrent COVID epidemic control measures and awareness of COVID-linked mortality (indicated by information in supplemental file 2). The answers otherwise show much consistency in each survey wave. Using PPE hindered communication and interfered with aspects of the job at least sometimes in all waves. A majority of respondents at least somewhat agreed that residents were alarmed by staff wearing PPE. Hand sanitiser and mask-wearing were perceived to cause skin problems in a majority of respondents. Most respondents associated mask-wearing with not drinking enough fluids (only asked in survey Waves 2 and 3).

Table 3. Morale and attitudes recently experienced at work : n, %

Not working in LTCFs any more [X]

	W1*	W2	**W3***
Constantly	**11, 5%**	8, 7%	**6, 18%**
Often	**34, 14%**	14, 12%	**8, 24%**
Sometimes	**76, 32%**	50, 43%	**9, 26%**
Not at all	**117, 49%**	43, 37%	**11, 32%**

Getting LTCF to reduce IPC [F]

	W1*	**W2***	W3
Constantly	**3, 1%**	**3, 3%**	0, 0%
Often	**5, 2%**	**7, 6%**	2, 6%
Sometimes	**27, 11%**	**20, 17%**	7, 21%
Not at all	**203, 85%**	**85, 74%**	25, 74%

Finding a different LTCF to work at [F]

	W1*	**W2***	W3
Constantly	**2, 1%**	**2, 2%**	2, 6%
Often	**8, 3%**	**7, 6%**	2, 6%
Sometimes	**35, 15%**	**29, 25%**	7, 21%
Not at all	**193, 81%**	**77, 67%**	23, 68%

This job isn't easy but it can be satisfying [F]

	W1	W2	W3
Constantly	64, 27%	22, 19%	8, 24%
Often	113, 47%	57, 50%	16, 47%
Sometimes	54, 23%	34, 30%	9, 26%
Not at all	7, 3%	2, 2%	1, 3%

My colleagues and I are all working well together to prevent COVID [F]

	W1	W2	W3
Constantly	139, 58%	65, 57%	16, 47%
Often	82, 34%	39, 34%	15, 44%
Sometimes	14, 6%	10, 9%	3, 9%
Not at all	3, 1%	1, 1%	0, 0%

My manager has been supportive [F, X]

	W1	W2	W3
Constantly	129, 54%	55, 48%	13, 38%
Often	70, 29%	34, 30%	11, 32%
Sometimes	26, 11%	18, 16%	7, 21%
Not at all	13, 5%	8, 7%	3 ,9%

Getting LTCF to increase IPC [F, X]

	W1	W2	W3
Constantly	16, 7%	8, 7%	1, 3%
Often	23, 10%	13, 11%	7, 21%
Sometimes	50, 21%	34, 30%	10, 29%
Not at all	149, 63%	60, 52%	16, 47%

Notes: * : significantly different from one other survey wave at threshold $p < 0.05$; ** : significantly different from 2 other waves. Superscripts denote between group test applied to look for significant difference between any two survey waves. [F] Fisher Exact Test, [X] Chi-square test.

Table 4. Practical challenges encountered due to implementing IPC : n, %

Wearing PPE harder to give physical care to residents [X]

	W1	W2	W3
Strongly agree	48, 21%	17, 15%	7, 21%
Somewhat agree	93, 40%	47, 41%	10, 29%
Neither	34, 15%	na	na
Somewhat disagree	25, 11%	36, 31%	9, 26%
Strongly disagree	33, 14%	15, 13%	8, 24%

Residents are alarmed by staff wearing PPE [F, X]

	W1	W2	W3
Strongly agree	27, 11%	15, 13%	2, 6%
Somewhat agree	81, 34%	45, 39%	17, 50%
Neither	54, 23%	na	na
Somewhat disagree	44, 18%	40, 35%	11, 32%
Strongly disagree	32, 13%	15, 13%	4, 12%

Wearing PPE harder to communicate with residents or colleagues [F]

	W1	W2	W3
Strongly agree	140, 60%	56, 49%	19, 56%
Somewhat agree	77, 33%	38, 33%	9, 26%
Neither	6, 3%	na	na
Somewhat disagree	6, 3%	17, 15%	3, 9%
Strongly disagree	6, 3%	4, 3%	3, 9%

Feeling frustrated about too little social distancing by others [F, X]

	W1**	W2	W3
Strongly agree	**118, 50%**	18, 16%	5, 15%
Somewhat agree	**70, 29%**	25, 22%	15, 44%
Neither	**24, 10%**	na	na
Somewhat disagree	**12, 5%**	63, 46%	10, 29%
Strongly disagree	**11, 5%**	19, 17%	4, 12%

Hand sanitiser irritates my hands [F, X]

	W1	W2	W3
Strongly agree	48, 21%	22, 19%	7, 21%
Somewhat agree	79, 34%	23, 20%	13, 38%
Neither	39, 17%	na	na
Somewhat disagree	26, 11%	41, 36%	10, 29%
Strongly disagree	44, 19%	29, 25%	4, 12%

My normal social life isn't possible right now [F, X]

	W1**	W2	W3
Strongly agree	**135, 57%**	28 24%	11, 32%
Somewhat agree	**54, 23%**	42, 37%	7, 21%
Neither	**23, 10%**	na	na
Somewhat disagree	**12, 5%**	34, 30%	12, 35%
Strongly disagree	**13, 5%**	11, 10%	4, 12%

Mask-wearing gives me skin problems [X]

	W1	W2	W3
Strongly agree	65, 28%	33, 29%	8, 24%
Somewhat agree	69, 30%	29, 25%	14, 41%
Neither	32, 14%	na	na
Somewhat disagree	29, 12%	29, 25%	7, 21%
Strongly disagree	43, 18%	24, 21%	5, 15%

Mask wearing means I don't drink enough fluids at work [F]

	W1	W2	W3
Strongly agree	na	32, 28%	14, 41%
Somewhat agree	na	42, 37%	10, 29%
Neither	na	na	na
Somewhat disagree	na	24, 21%	7, 21%
Strongly disagree	na	17, 15%	3, 9%

Notes: na means the response option wasn't available in that survey wave. * : significantly different from one other survey wave at threshold $p < 0.05$; ** : significantly different from 2 other waves. Superscripts denote between group test applied to look for significant difference between any two survey waves. [F] Fisher Exact Test, [X] Chi-square test.

Preparedness

In survey Waves 2 and 3, by the time they had worked four shifts independently at the LTCF, we asked specifically about how well staff felt that they had been trained to use PPE and in general were prepared to follow recommended procedures to prevent COVID infections (results in Table 5). Most staff strongly agreed at both survey points that they were working in an environment that supported correct procedures and use of PPE, they had had enough training, and they were able to follow recommended procedures. Agreement that they had received enough training by the time they worked four shifts independently was significantly lower in Wave 3 than Wave 2. With respect to other aspects of IPC training in Table 5, there were no significant differences between survey Waves 2 and 3.

Table 5. Preparedness for IPC by the time respondent had worked four shifts independently : n, %

I had received enough training in how to prevent COVID infection			*I believed that I could do my job well and follow all the recommended procedures to prevent transmission of COVID*		
	W2*	**W3***		W2	W3
Strongly agree	**80, 70%**	**17, 50%**	Strongly agree	79, 69%	20, 59%
Somewhat agree	**24, 21%**	**16, 47%**	Somewhat agree	28, 24%	12, 35%
Somewhat disagree	**5, 4%**	**1, 3%**	Somewhat disagree	3, 3%	2, 6%
Strongly disagree	**6, 5%**	**0, 0%**	Strongly disagree	5, 4%	0, 0%
I knew how to put PPE on			*Everything was set up well in my LTCF to make donning and doffing PPE happen correctly*		
	W2	W3		W2	W3
Strongly agree	86, 75%	25, 74%	Strongly agree	79, 69%	19, 56%
Somewhat agree	21, 18%	8, 24%	Somewhat agree	23, 20%	8, 24%
Somewhat disagree	6, 5%	1, 3%	Somewhat disagree	9, 8%	6, 18%
Strongly disagree	2, 2%	0, 0%	Strongly disagree	4, 3%	1, 3%
I knew how to take PPE off	W2	W3			
Strongly agree	85, 74%	26, 76%			
Somewhat agree	23, 20%	7, 21%			
Somewhat disagree	5, 4%	1, 3%			
Strongly disagree	2, 2%	0, 0%			

Notes: * : significantly different from other survey wave at threshold $p < 0.05$. Test applied to look for significant difference between these two survey waves was always Fisher Exact Test.

Habitual PPE use

Supplemental file 5 shows frequency that staff reported using specific types of PPE. In Waves 2 and 3 we expanded the eye protection question to be more specific, goggles or faceshields. It is apparent that the PPE strategy was heavily reliant on face masks and sanitiser. Gloves were very common while forms of eye protection were only used by a minority. Proportionally, there were no significant between survey Wave differences in answers to these questions.

Comments about Infection Prevention and Control

Respondents were invited in survey waves 2 and 3 to make additional comments about IPC in their work environment. These verbatim comments will be thematically analysed and integrated into a separate qualitative analysis of LTCF staff interview comments that we collected in parallel (author names suppressed, in preparation); the survey comments are included as supplemental file 6. These comments tend to address working practices, training, risks from visitors returning, compliance with guidelines and physical infrastructure. The comments were diverse, specific and often candid.

Discussion

With respect to the demographic traits in Table 1, Wave 1 respondents were different from those who replied in survey Waves 2 and 3. These differences suggest variations in recruitment between each wave. As a result of these demographic variations as well as the fairly small number of replies to the third survey Wave, although we report on between Wave differences, we cannot be confident that implied changes over time are generalisable to the wider LTCF workforce.

We feel more confident that findings that were consistent in all three waves are likely to be generalisable. We were surprised at the level of positivity that respondents felt about their working environment, given the often-cited disappointing pay, poor career or training opportunities and low social status of social care jobs. This positivity also emerged in analysis of staff interview data we collected in parallel and that will be described separately. It seems that indeed, this workforce does the job for satisfaction as much as pecuniary reward [22].

We note that the survey waves started about 8 months after COVID arrived in the UK, by which time IPC training regimes should have been well established and most staff could report they felt mostly prepared and competent at implementing IPC measures soon after they started working independently. Nevertheless, IPC practices were reported to add many challenges to the work,

especially with regard to dehydration, skin discomforts, communication and maintaining a safe atmosphere for residents.

Our survey indicates subjective feelings of wellbeing at the point of time when respondents answered. We did not assess prevalence of mental health issues. There are many research studies that assessed prevalence of likely mental health problems in social care staff – after the COVID pandemic started [23-25]. For instance, Greene et al. (2021) [26] found that among UK LTCF staff surveyed in May-July 2020, 57.9% met criteria for having clinically significant distress. For comparison, a 2017 study about American nursing home staff found a 26% prevalence of depression among nursing home staff [27]. We have not located equivalent research about pre-pandemic prevalence of mental health problems in the UK social care workforce, although the *Retention and Sustainability of Social Care Workforce* (RESSCW) project (https://www.pssru.ac.uk/resscw/frontpage/) which operated 2019-2022 was established to better understand wellbeing in the UK social care workforce. General wellbeing has been described (as poor) in this occupational group before 2020, and directly linked to their low pay, poor training opportunities and low social status [22].

It seems likely that LTCF staff wellbeing and support to undertake effective IPC have fluctuated during the pandemic, and indeed responses were very sensitive to country-specific factors and exactly when workers were canvassed. For instance, mental and physical wellbeing was reported as worse or much worse than usual by most (57%) respondents in a survey of registered nurses who worked in UK care homes in April-March 2020, while 35% said that they did not always have access to appropriate PPE [28]. We did not survey so early in the pandemic and did not have similar findings. Closer to our own survey dates is an online survey of 1047 social care workers in April-June 2021 for the RESSCW project [29]. In the few weeks prior to filling in the survey, 40% of respondents said their job made them feel cheerful most or all of the time, but 39% also said their job made them feel tense all or most of the time. Only 51% were satisfied with their work-life balance. Worryingly, 26% of RESSCW respondents had experienced abuse related to the COVID pandemic (such as threats, bullying and violence). That working in a LTCF during the pandemic had mixed positive and negative impacts on wellbeing is similar to our own findings, although we did not ask about abuse experiences.

There is, nonetheless, optimism that conditions may improve for social care staff in that the COVID experience increased appreciation of this key worker group [30-32]. An abundance of clearly documented links between mental health outcomes in the workforce with their increasingly obvious

role in protecting residents and how management decisions can support staff morale [26] should help to improve public regard for social care work. The postulated link between working conditions and COVID outbreaks in LTCFs is supported by evidence that English LTCFs with more secure access to PPE had fewer COVID cases and deaths among residents in April 2020 [33], while Shallcross *et. al*. [34] found evidence in a large survey (5126 responses) of English care home managers in May-June 2020 that LTCFS that provided sick pay, had higher staff ratios and fewer agency staff had fewer COVID infections among residents.

There was much concern early in the pandemic that COVID was spreading directly *between* LTCFs, a concern supported by evidence that distinctive genomic strains were over-represented in LTCFs [35]. Direct, between-home spread could arise due to reliance on agency staff or simply the high turnover and insecurity of jobs in the care sector: an individual might understandably have multiple concurrent employment LTCF contracts. From March to November 2021, English LTCFs were required to try to prevent staff in caring roles from working in multiple LTCFs [36]. It was also plausible that a high rate of physical and social contact in other settings could mean higher transmission risk ultimately into LTCFs. It is therefore useful to document work practices in multiple LTCFs and in other care settings – and which types of settings. There was much variety in other settings where our respondents worked, for instance in hospitals as trainee health professionals, in hospices or rehabilitation centres, with children or disabled persons and providing domiciliary social care. This common multi-setting employment pattern illustrates why a ban on staff working in multiple LTCFs was possibly unsustainable and ineffective. It imposed possibly unacceptable employment terms on individuals and may have been ineffective for transmission reduction, given the other cross-setting infection transfer potential in the real-world working practices of this staff group. It is worth noting that all of these other settings are also experiencing concurrent significant workforce shortages [21]; a sustained ban on multi-setting care-related work would need to be planned carefully and supported financially to be practical. It would also be undesirable to disrupt potential for earning and skills development of trainee health professionals. We note that we do not have information about any direct transmission between LTCFs or from individual staff into LTCFs, or that any of these reported multi-setting working practices led to new COVID introduction into specific LTCFs.

Fake answers ("Bots") plagued our second- and third-wave surveys. Bot problems could be reduced with invitation-only surveys, but this was not viable in our research; no suitable contact information database was available. Removing an incentive might not eliminate the Bot risk since many of the Bot entries did not leave contact details for the prize draw; we speculate that many Bot entries are

training and exploration runs. We recommend that other public online survey writers make open-ended text answers compulsory to answer, because open-text answers especially revealed Bots. Including multiple quality-control check questions also uncovers Bots, especially if the questions involve cognitive skills or knowledge of popular culture or current affairs.

Limitations

Respondents outside southern and eastern England were poorly represented. Managers/senior care workers (who also overwhelmingly provide at least some personal care while managing other staff and making operational decisions) were over-represented compared to junior care workers who do not have any management responsibility. It is estimated that there are nearly 17,000 LTCFs in the UK employing over 600,000 staff [37]; it seems highly likely our survey advertising did not reach most LTCF staff but we do not have information to discern if any particular kind of LTCF was under-represented. Response count to Wave 3 was low which increases the likelihood that the answers were not representative. It is plausible that respondent numbers declined over time due to "research fatigue", as key workers became weary of being asked about their situation during the UK COVID epidemic [38]. With regard to providing personal care in other paid or voluntary settings, ability to work in multiple LTCFs was restricted during the survey periods and it seems likely that the prevalence of such cross-setting work reported here is lower than past or future prevalence (in non-pandemic conditions). We did not ask about testing habits or challenges. Concurrently during all survey waves, LTCF staff had to test frequently for SARS-CoV-2, with expected self-isolation to follow positive results. This testing regime may have imposed its own psychological, financial and/or mental health burdens.

Conclusions

Morale, attitudes towards working environment and perception about colleague collaboration were generally positive among most LTCF staff respondents at three different points in the middle-late Covid epidemic period in Britain, including when mortality risk was very high. ICP training and preparedness from first survey response date (November 2020) was perceived as adequate for staff to feel confident in their daily duties. Staff generally felt more positive than negative feelings at work. The working environment was still acknowledged to be challenging. Masks were the single form of PPE item most consistently used; eye protection the least used. Mask-wearing was linked to poorer communication and resident discomfort as well as mild negative health impacts on many staff, such as dehydration and adverse skin reactions. Hand sanitiser was also cited as causing skin irritation.

References

1. Kaeuffer C, Le Hyaric C, Fabacher T, Mootien J, Dervieux B, Ruch Y, et al. Clinical characteristics and risk factors associated with severe COVID-19: prospective analysis of 1,045 hospitalised cases in North-Eastern France, March 2020. Eurosurveillance. 2020;25:2000895.
2. Parohan M, Yaghoubi S, Seraji A, Javanbakht MH, Sarraf P, Djalali M. Risk factors for mortality in patients with Coronavirus disease 2019 (COVID-19) infection: a systematic review and meta-analysis of observational studies. The Aging Male. 2020;23:1416-24.
3. Methodist Homes. Facts & Stats. 2022.
4. Burki T. England and Wales see 20 000 excess deaths in care homes. The Lancet. 2020;395.
5. McMichael TM, Clark S, Pogosjans S, Kay M, Lewis J, Baer A, et al. COVID-19 in a long-term care facility—King County, Washington, February 27–March 9, 2020. Morbidity and Mortality Weekly Report. 2020;69.
6. Rajan S, Comas-Herrera A, Mckee M. Did the UK government really throw a protective ring around care homes in the COVID-19 pandemic? Journal of Long-Term Care. 2020;2020:185-95.
7. McKee M. No minister, a “protective ring” was not thrown around care homes. British Medical Journal 2022;377.
8. Daly M. COVID-19 and care homes in England: What happened and why? Social Policy & Administration. 2020;54:985-98.
9. International A. As if expendable: The UK government’s failure to protect older people in care homes during the Covid-19 pandemic. Amnesty International London; 2020. p. 52.
10. Langins M, Curry N, Lorenz-Dant K, Comas-Herrera A, Rajan S, Organization WH. The COVID-19 pandemic and long-term care: What can we learn from the first wave about how to protect care homes? Eurohealth. 2020;26:77-82.
11. Towers A-M, Killett A, Handley M, Almack K, Backhouse T, Bunn D, et al. Producing ‘Top Tips’ for care home staff during the COVID-19 pandemic in England: rapid reviews inform evidence-based practice but reveal major gaps. Journal of Long-Term Care. 2020.
12. Marshall F, Gordon A, Gladman JR, Bishop S. Care homes, their communities, and resilience in the face of the COVID-19 pandemic: interim findings from a qualitative study. BMC Geriatrics. 2021;21:1-10.
13. Nyashanu M, Pfende F, Ekpenyong MS. Triggers of mental health problems among frontline healthcare workers during the COVID-19 pandemic in private care homes and domiciliary care agencies: Lived experiences of care workers in the Midlands region, UK. Health & Social Care in the Community. 2022;30:e370-e6.
14. Skills for Care. Workforce Intelligence. Skills for Care; 2021.
15. Hussein S. The English social care workforce: the vexed question of low wages and stress. In: Christensen K, Pilling D, editors. The Routledge Handbook of Social Care Work Around the World: Taylor & Francis; 2017. p. 74-87.
16. Moriarty J, Manthorpe J, Harris J. Recruitment and retention in adult social care services. Kings College London; 2018.
17. Greenberg N. Mental health of health-care workers in the COVID-19 era. Nature Reviews Nephrology. 2020;16:425-6.
18. Smith LE, Serfioti D, Weston D, Greenberg N, Rubin GJ. Adherence to protective measures among healthcare workers in the UK: a cross-sectional study. Emergency Medicine Journal. 2022;39:100-5.
19. Griffin M, Martino RJ, LoSchiavo C, Comer-Carruthers C, Krause KD, Stults CB, et al. Ensuring survey research data integrity in the era of internet bots. Quality & Quantity. 2021:1-12.

20. Simone M. How to Battle the Bots Wrecking Your Online Study. Behavioural Scientist: Behavioural Scientist; 2019.
21. O'Connor S. UK plan shows how not to deal with labour shortages. The Financial Times2022.
22. Hussein S. "We don't do it for the money"… The scale and reasons of poverty-pay among frontline long-term care workers in England. Health & Social Care in the Community. 2017;25:1817-26.
23. Brady C, Fenton C, Loughran O, Hayes B, Hennessy M, Higgins A, et al. Nursing home staff mental health during the Covid-19 pandemic in the Republic of Ireland. International Journal of Geriatric Psychiatry. 2022;37.
24. Riello M, Purgato M, Bove C, MacTaggart D, Rusconi E. Prevalence of post-traumatic symptomatology and anxiety among residential nursing and care home workers following the first COVID-19 outbreak in Northern Italy. Royal Society Open Science. 2020;7:200880.
25. Senczyszyn A, Lion KM, Szcześniak D, Trypka E, Mazurek J, Ciułkowicz M, et al. Mental health impact of SARS-COV-2 pandemic on long-term care facility personnel in Poland. Journal of the American Medical Directors Association. 2020;21:1576.
26. Greene T, Harju-Seppänen J, Adeniji M, Steel C, Grey N, Brewin CR, et al. Predictors and rates of PTSD, depression and anxiety in UK frontline health and social care workers during COVID-19. European Journal of Psychotraumatology. 2021;12:1882781.
27. Okechukwu CA, El Ayadi AM, Tamers SL, Sabbath EL, Berkman L. Household food insufficiency, financial strain, work–family spillover, and depressive symptoms in the working class: The work, family, and health network study. American Journal of Public Health. 2012;102:126-33.
28. Bushe D, Leary A, Punshon G. The experience of care home staff during COVID-19: a survey report by the QNI's International Community Nursing Observatory. 2020. p. 24.
29. Saloniki E-C, Turnpenny A, Collins G, Marchand C, Towers A-M, Hussein S. Abuse and Wellbeing of Long-Term Care Workers in the COVID-19 Era: Evidence from the UK. Sustainability. 2022;14:9620.
30. Hussein S, Saloniki E, Turnpenny A, Collins G, Vadean F, Bryson A, et al. COVID-19 and the Wellbeing of the Adult Social Care Workforce: Evidence from the UK. The Personal Social Services Research Unit, University of Kent: Canterbury, UK. 2020.
31. Malmgren Fänge A, Christensen J, Backhouse T, Kenkmann A, Killett A, Fisher O, et al. Care home and home care staff's learning during the COVID-19 pandemic and beliefs about subsequent changes in the future: A survey study in Sweden, Italy, Germany and the United Kingdom. Healthcare. 2022;10:306.
32. Wild DJ, Szczepura A. Reimagining care homes: can the COVID-19 pandemic act as a catalyst for enhancing staff status and education? Nursing Older People. 2021;33.
33. Brainard J, Rushton S, Winters T, Hunter PR. Introduction to and spread of COVID-19-like illness in care homes in Norfolk, UK. Journal of Public Health. 2021;43:228-35.
34. Shallcross L, Burke D, Abbott O, Donaldson A, Hallatt G, Hayward A, et al. Factors associated with SARS-CoV-2 infection and outbreaks in long-term care facilities in England: a national cross-sectional survey. The Lancet Healthy Longevity. 2021;2:e129-e42.
35. Hamilton WL, Tonkin-Hill G, Smith ER, Aggarwal D, Houldcroft CJ, Warne B, et al. Genomic epidemiology of COVID-19 in care homes in the east of England. Elife. 2021;10:e64618.
36. Learner S. Care worker shortages force government to lift Covid ban on staff working in more than one care home. carehome.co.uk; 2021.
37. Anonymous. Care home stats: number of settings, population & workforce. 2022.
38. Gnanapragasam SN, Hodson A, Smith LE, Greenberg N, Rubin GJ, Wessely S. COVID-19 survey burden for healthcare workers: Literature review and audit. Public Health. 2021:94-101.

List of Supplemental files

Supplemental file 1. Survey instrument, Wave 3
Supplemental file 2. Weekly count of Wave responses, with English COVID-19 mortality and variants of concern emergence
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Supplemental file 4. Respondent locations
Supplemental file 5. Frequency of using specific forms of PPE recently at work : n, %
Supplemental file 6. Open text comments from respondents

Please tell us about your recent work situation.

3. How many years of experience do you have working in care homes? *

- ◯ Less than one year
- ◯ 1-2 years
- ◯ 3-5 years
- ◯ 5 years or more

4. In the last 4 months, what care-home roles have you been employed to do? Tick all that apply. *

- ☐ Care worker providing personal care such as help with meals, getting dressed or help with going to the toilet
- ☐ Manager or senior care worker
- ☐ Kitchen, catering and/or dining room
- ☐ Domestic (including cleaning and/or laundry)
- ☐ Maintenance, gardening or estates
- ☐ Activities co-ordinator
- ☐ Administration
- ☐ Other

5. In the past 4 months, on average, how many days each week did you work at least one shift in any care home? *

- ◯ 2 or less
- ◯ 3-4
- ◯ 5 or more

6. How many care homes have you worked in during the last 4 months? *

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4 or more
- ◯ Not sure/can't remember

7. In the last year, have you worked (paid or volunteering) in other settings that provide care to people outside your family, such as a hospice, hospital, school or children's nursery? If yes, which types of settings? Click all that apply and please write details if you work or volunteer in a setting not listed here (Other option) *

- ☐ I don't volunteer or work in other settings
- ☐ In a primary school or as nanny/childminder for children age 4-11
- ☐ With secondary school age children (age 12-16 years)
- ☐ With children or young people (under 18 years) who need help with personal care
- ☐ With adults who need help with personal care
- ☐ Hospice or rehabilitation centre
- ☐ In hospital with inpatients or outpatients
- ☐ As a student nurse, midwife or other student health professional
- ☐ Providing personal care or support to persons living in their own homes
- ☐ Providing care to under-school-age children, such as childminding, nanny, nursery or preschool setting
- ☐ Other

Morale and infection control where you work

To answer the following questions, please think about the care home where you did the most

8. Most recently, how much did you feel these emotions while working at the care home? Please swipe or turn your device sideways if you can't see all the answer options *

	Not at all	Sometimes	Often	Constantly
Anxious	○	○	○	○
Happy	○	○	○	○
Relaxed	○	○	○	○
Energised	○	○	○	○
Angry	○	○	○	○
Please click 'Not at all'	○	○	○	○
Finding work rewarding	○	○	○	○
Tired	○	○	○	○
Sad	○	○	○	○
Satisfied	○	○	○	○
Scared	○	○	○	○

9. When you think about your recent care-home shifts, how much do you consider these ideas? *

	Not at all	Sometimes	Often	Constantly
Not working	Not at all	Sometimes	Often	Constantly

Not working at care homes any more	○	○	○	○
Finding a different care home to work at	○	○	○	○
Trying to get the care home to increase its infection-control practices	○	○	○	○
Trying to get the care home to reduce any of the infection-control practices	○	○	○	○
This job isn't easy but it can be satisfying	○	○	○	○
My colleagues and I are all working well together to prevent COVID-19	○	○	○	○
My work is rewarding	○	○	○	○
My manager has been as supportive as they can be of the challenges we face in infection control	○	○	○	○

10. Do you find that you experience any of these challenges related to your work in the care home? *

	Strongly agree	Tend to agree	Tend to disagree	Strongly disagree
Wearing PPE makes it harder to give physical care to residents	○	○	○	○
Wearing PPE makes it harder to communicate with residents or colleagues	○	○	○	○
Hand sanitiser irritates my hands	○	○	○	○
Residents are alarmed by staff wearing PPE	○	○	○	○
I try hard to socially distance but other people make too little effort to socially distance	○	○	○	○
Keeping residents safe from COVID-19 means I can't have as much social life as other people have	○	○	○	○
Mask-wearing makes my skin sore	○	○	○	○

Strongly agree Tend to agree Tend to disagree Strongly disagree

Mask-wearing means I don't drink enough fluids while at work	◯	◯	◯	◯

11. How often did you use these PPE items while working with or near care-home residents? *

	Not at all	Sometimes	Often	Always
Apron	◯	◯	◯	◯
Gloves	◯	◯	◯	◯
Goggles	◯	◯	◯	◯
Face shield	◯	◯	◯	◯
Mask	◯	◯	◯	◯
Hand sanitiser	◯	◯	◯	◯

12. To help us keep out computer Bot answers, please select below the word which is a colour that has a letter p in it *

- ◯ Pleasing
- ◯ Pig
- ◯ Blue
- ◯ Gypsy
- ◯ Gasp
- ◯ Green
- ◯ Pink
- ◯ Ghost

13. By the time you had worked five shifts independently in the care home during the pandemic, how much do you agree with these statements? *

	Strongly agree	Tend to agree	Tend to disagree	Stongly disagree
I had received enough training in how to prevent COVID-19 infection	○	○	○	○
I was confident that I knew correct procedure for putting PPE on	○	○	○	○
I was confident that I knew correct procedure for taking PPE off	○	○	○	○
Everything was set up well in my care home to make donning and doffing PPE happen correctly	○	○	○	○
I believed that I could do my job well and follow all the recommended procedures to prevent transmission of COVID-19	○	○	○	○

14. Is there anything else about infection-control measures in care homes where you have worked that you would like to mention?

Some questions about you

15. What gender do you identify with? *

- ◯ Female
- ◯ Male
- ◯ Neither male/female or prefer not to say

16. What is your age? *

- ◯ 18-25 years
- ◯ 26-35 years
- ◯ 36-45 years
- ◯ 46-55 years
- ◯ 56-65 years
- ◯ 66 years or older

17. What is your ethnic group? Please choose one option that best describes your ethnic group or background. You can state your ethnicity if you choose the Other option. *

- ◯ White English/Welsh/Scottish/Northern Irish/British
- ◯ Irish
- ◯ Gypsy or Irish Traveller
- ◯ Any other White background
- ◯ Mixed: White and Black Caribbean
- ◯ Mixed: White and Black African
- ◯ Mixed: Any other multiple background
- ◯ Bangladeshi
- ◯ Indian
- ◯ Pakistani
- ◯ Chinese
- ◯ African
- ◯ Caribbean
- ◯ Arab
- ◯ Prefer not to say
- ◯ Other

18. Roughly where in the UK do you work (mostly)? Please indicate where, if not one of the places below. *

- ◯ South East England
- ◯ Eastern England
- ◯ South West of England
- ◯ Midlands
- ◯ North East England
- ◯ North West England
- ◯ Wales
- ◯ Scotland
- ◯ Northern Ireland
- ◯ Other

Inclusion in prize draw

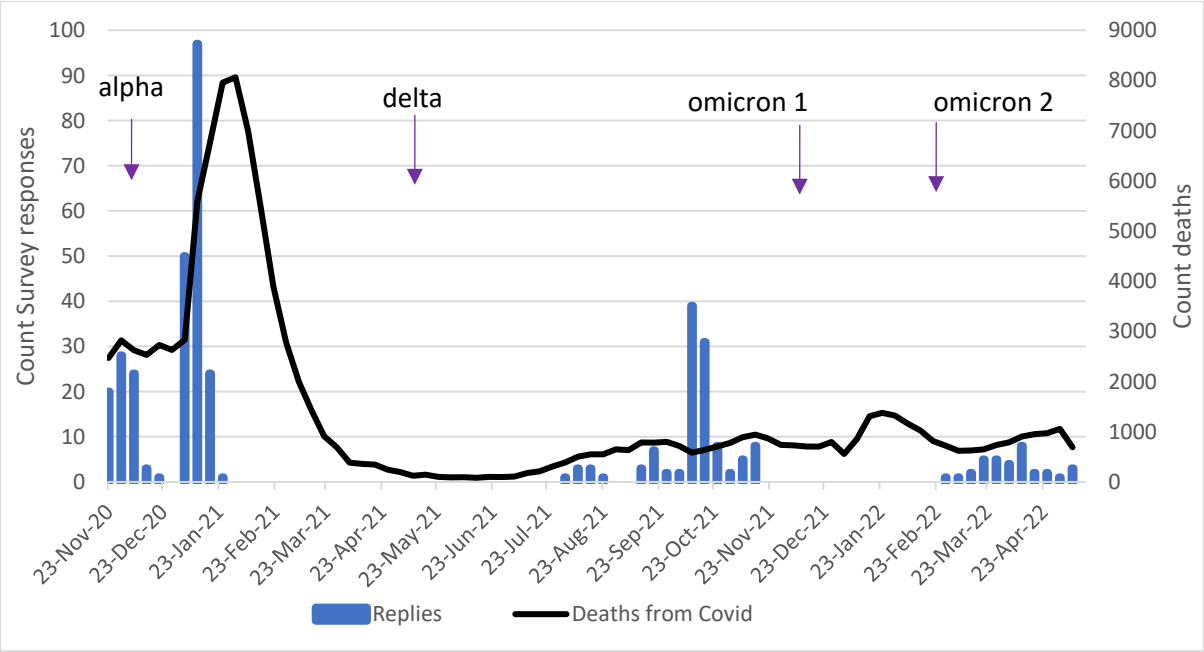
Please enter your details below if you would like to be included in a prize draw to win a £10 Amazon voucher for completing this survey.

Your contact information will not be linked to any of your survey answers.

19. Yes, I would like my name to be entered in the prize draw for completing this survey and my contact details are below (please provide first name and either email or phone number)

Supplemental file 2

Weekly count of Wave responses, with English COVID-19 mortality and variants of concern emergence.



Notes: England Covid-attributable deaths source = Table 6 at https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/weeklyprovisionalfiguresondeathsregisteredinenglandandwales. Arrows indicate when each variant of concern comprised ≥ 50% of genomically sequenced UK Covid-test (PCR) samples, from data at https://sars2.cvr.gla.ac.uk/cog-uk/. Omicron 1 = BA.1/BA1.x; Omicron 2 = BA.2/BA.2.x.

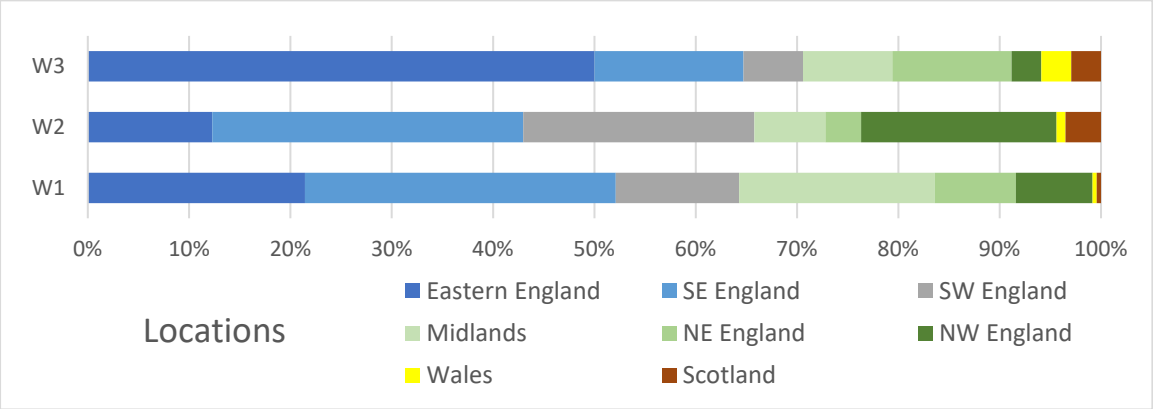
Supplemental file 3.

Counts of respondents who worked in other settings potentially providing personal care to people

Setting	W1	W2	W3
Hospice or rehabilitation centre	4	4	1
In hospital with inpatients or outpatients	8	2	4
As a trainee health professional (eg., midwife, paramedic, student nurse)	5	4	2
Providing personal care or support to persons living in their own homes	7	2	3
Providing care to under school age children, such as childminding, nanny, nursery or preschool setting	4	1	0
In a primary school or as nanny/childminder for children age 4-11	4	3	0
With secondary school age children (age 12-16 years	0	1	0
With children or adults in another setting (eg., assisted living; playscheme for disabled children)	14	11	5
Totals are not mutually exclusive, double counting is possible			
Maximum possible answers	238	115	34

Supplemental file 4

Respondent locations



Supplemental file 5

Frequency of using specific forms of PPE recently at work : n, %

Apron [F, X]	**W1**	**W2**	**W3**	**Eye Cover**	**W1**	**W2**	**W3**
Always	110, 47%	61, 53%	13, 38%	Always	36, 15%	na	na
Often	73, 31%	29, 25%	13, 38%	Often	39, 16%	na	na
Sometimes	43, 18%	18, 16%	7, 21%	Sometimes	98, 41%	na	na
Not at all	9, 4%	7, 6%	1, 3%	Not at all	64, 27%	na	na
Gloves [F]	**W1**	**W2**	**W3**	**Faceshield** [X]	**W1**	**W2**	**W3**
Always	143, 61%	78, 68%	19, 56%	Always	na	18, 16%	5, 15%
Often	62, 26%	23, 20%	10, 29%	Often	na	16, 14%	5, 15%
Sometimes	29, 12%	11, 10%	4, 12%	Sometimes	na	49, 43%	15, 44%
Not at all	3, 1%	3, 3%	1, 3%	Not at all	na	32, 28%	9, 26%
Mask [F]	**W1**	**W2**	**W3**	**Goggles** [F]	**W1**	**W2**	**W3**
Always	219, 93%	107, 93%	32, 94%	Always	na	10, 9%	1, 3%
Often	11, 5%	6, 5%	1, 3%	Often	na	12, 10%	4, 12%
Sometimes	4, 2%	2, 2%	1, 3%	Sometimes	na	41, 36%	13, 38%
Not at all	4, 2%	0, 0%	0, 0%	Not at all	na	52, 45%	16, 47%
Sanitiser [F]	**W1**	**W2**	**W3**				
Always	196, 83%	106, 92%	27, 79%				
Often	35, 15%	7, 6%	6, 18%				
Sometimes	4, 2%	2, 2%	1, 3%				
Not at all	2, 1%	0, 0%	0, 0%				

Note: na means the response option wasn't possible in that survey wave. Superscripts denote between group test applied to look for significant difference between any two survey waves. [F] Fisher Exact Test, [X] Chi-square test.

Supplemental file 6.

Open text comments that respondents made near survey end

WAVE 2
Consistent advice from PH, NCC, QA, the advice also needs to reflect the situation, rather than playing catch up.
The masks we are all forced to wear are a hideous inconvenience, especially during the summer . They are nothing but a sop . Bearing in mind that to work in the home we have to be double jabbed , that the residents are double jabbed , we are LFT and PCR tested twice a week or more , that in the outside world the vast majority no longer have to wear them , why are we being forced to wear them? A year ago it was perfectly understandable and made sense , now it just seems to be futile exercise in arse covering . It makes communication harder , breathing when working at anything more than a gentle walking pace harder and doesn't make anybody feel any safer.
The impossibility of isolating residents with dementia. The impossibility of donning and doffing PPE correctly when finding residents wandering combined with the difficulties resulting from short staffing. The anxiety caused by those not wearing masks correctly or failing to get vaccinated. Having to combine personal cares with kitchen duties.
No more than 4 people per room.
Care UK have set guidelines for the use of PPE. We also have IPC leads regionally and within the homes
Some staff do not seem to take the infection control measures that have been put in place seriously
Generally IPC nurses are unrealistic in their demands, they do not understand that this environment is our residents HOME not an ITU unit. The requirement to constantly wear masks is neither relevant or useful but is disorientating and frightening for our residents and impacts negatively on communication between staff and residents.
not wearing uniform to and from work as before pandemic was effective measure.
Communicating with the hard of hearing. Communicating well to people with dementia. Masks/aprons in hot weather is uncomfortable. Planning relatives visits = new role along with testing arrangements and checks.
We implemented basic strict infection control procedures at the start of March 2020 without any guidance or support from the government or regulators.
i found the lack of full body aprons available for care staff were limited or non existent from the PPE portal and that the aprons available to us do not fully protect you in the event of an outbreak where residents are able to touch you
Hand washed as often and continue lateral flow in-place both residents service providers all people non organisational practitioners who are in contact with using service in each LTCFs.
High standards were being adhered to at all times. Staff were well informed
Many important policies were not enforced (eg. changing into uniform when arriving at work and changing into normal clothes when leaving ect) Family of residents were restricted access to their loved ones well after guidelines had been changed to accommodate such meetings.
More training
We were given such conflicting advise on when and what PPE we had to wear , it was constantly changing. For example , the use of gloves and aprons when assisting people to eat , in communal areas of the LTCF not just when providing personal care. One minute we didn't need gloves and aprons in communal areas of the home , the next minute we did. When covid first happened we were

only allowed to wear one mask per shift - I find that disgusting. We weren't allowed to wear pf3 masks or full gowns even when we had a covid outbreak , despite having them in the building . Myself and my colleagues were not adequately protected with PPE to do my job safely , of we were to have an outbreak in the home again I would feel the same - the PPE provided is not adequate. I cought covid at work and brought it home to my family / my child - I feel let down by my employer and the government so much so that I no longer want to work in a LTCF or be apart of any social care system

From home manager up. PPE provision was primitive and basic despite taking discharged hospital patients at the beginning of the pandemic.
The sluice provisions were inadequate for such infection control procedures.
Despite loosing experienced staff who could only be replaced by candidates who were novices who did not stay. New residents were continuously replacing those we lost. Again often with financial government aid hospital turnover. We were not and are not staffed with the experience to deal to deal with continuous replacement residents.

It was really hard for visitors to understand the need. Also it felt that all measures were useless, covid gets in anyway

Management very quick to act on any concerns care staff have brought to their attention.
Staff wanted arm length gowns when outbreak occurred, Management got these ASAP

I have found that visitors are sometimes surprised that they still have to wear a mask inside our home as they no longer wear them at any other time.

The owners are also managers and are hands on. They are experiencced registered nurses. They implemented additional infection control measures and provided additional infection training before PHE or the Government realised there was a need to do so in LTCFs from very early March 2020. They hold regular update meetings with staff and service users. They have carried out PCR testing every Saturday since testing was implemented and twice weekly LFD testing. They have worked with us listened to our concerns and fears. Supported us and our families provided counselling when needed. Provided additional support to service users to help them stay safe outside of the home. To date we have had no cases of Covid in the home. We have all been doubly vaccinated and have received our boosters and flu jabs. We have all worked tirelessly to protect each other and to protect the people who use our service.

Already good,

I feel that when we did not have visitors that the LTCF was safer. Since reintroducing visitors it is a constant battle against getting visitors to abide by the rules

Staff were very mindful of the need for infection control measures and adhered to them in work and in the community, so much so no residents have experienced covid symptoms or died as a result of covid. I feel this is testament to the staffs due diligence.

The management brought some interactive hand washing items for training and updated us regularly through team briefing's and Emails

We spent a lot of money prior to lockdown on PPE and wore it regularly. We could foresee the pandemic coming and wore PPE at all times. We instigated our own lockdown well before we were advised to by the Government.

Always had PPE available thorughout the pandemic and encouraged to use it

We have the support of the infection control nursing team and the Integrated joint board assurance visits

in the organisation in worked in the company really looked after the teams and made sure we had 3 months of stock so we did not run out. i feel they did the very best to keep use safe

We disinfect every day and wear masks.

There is far too much conflicting information, why does it have to be different for each region??? The prevention controls do not make any sense, staff have to come in wearing their civvies then go to a separate room and change into their uniforms, their civvies are put in a plastic bag along with a separate bag for their shoes before they can enter the main body of the building but visitors are

allowed to come in with their outdoor clothes on and walk through the building as are contractors??? I have had so much conflicting information which causes frustration amongst the staff, visitors are getting angry because they are constantly being told different things. Elderly deserve to live in a caring environment and now we are being told that meetings are being held to see if we are allowed to put up Christmas decoration, peoples human rights are being taken away from them and this is no longer a caring industry but because of the rules and regulations that we are now governed by.
WAVE 3
They balanced the risk of infection with residents needs.
No one worried about the increased infection control measures, it was very difficult at the beginning to source enough stock quickly enough. We never ran out of PPE but at times it felt close, and was frustrating.
staff with covid (myself included) were pressured to return to work and received negative treatment for being off. Managers would sit in the office and take their masks off but expect floor staff to constantly wear masks.
its time to remove face mask in LTCFs now
Difficult to provide training when so short-staffed, due to COVID and also losing much staff because of the Vaccine enforcement. No agency to support is also stretched. I can not have training when I am needed to support residents
We has good protection and protocols in place
Infection control in the home seems pointless when family and friends are visiting after being next to people that don't practice infection control and therefore strong possibility of passing infection on without knowing.
How to communicate with residents who have hearing impairments whilst wearing full PPE.
Yes good barrier Nursing and Covid testing
Infection control measures in themselves were insufficient. No medical grade masks, no enforcement and how does an apron protect you any better than a binbag? In an outbreak, absolutely felt putting the health of us and our loved ones at unnecessary risk, which now the covid restrictions are removed, we are not paid or protected from
Whilst being in a massive outbreak they were still allowing “essential” care givers of the residents in every day. This was not limited despite having most of the staff off also with COVID
We have had good measures for infection control
We have had to change completely our way of working , miss the friendliness of our LTCF, where we used to enjoy social occasions with the residents, staff used to take their breaks and lunch with the residents but since covid we have been unable to do this due to the wearing of masks. Its very sad.
I think the most difficult part can be visitors not follow procedure for infection control. Staff are all disciplined but making sure visitors are doing the same can be difficult
Space to socially distance within the work space can be an issue, as our LTCF was built nearly 30 years ago and not designed with Covid in mind
We strictly follow the infection control measures