



# **Impact of Working Longer Hours on Quality of Care**

**Final report**

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## **Impact of working longer hours on quality of care**

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## List of Abbreviations

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ACTAN	Association for Care, Training and Assessment Networks
CRM	Customer Relationship Manager
EEA	European Economic Area
NCA	National Care Association
NHS	National Health Service
NMDS-SC	National Minimum Data Set – Social Care
REA	Rapid Evidence Assessment
SfC	Skills for Care
SPSS	Statistical Package for the Social Sciences
TLAP	Think Local Act Personal

# Executive Summary

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This report outlines findings from a recent study which set out to examine the impact of longer working hours on quality of care in the adult social care sector. It comprised a rapid evidence assessment (REA) and quantitative work with employers (n=187) and staff (n=131). It also consulted with advisory groups in an effort to glean some views from people who use care and support services.

## Findings from the work

### Contracts and working patterns of the sample

Responses from employers and staff indicate a range of working contracts, including a significant minority on zero hour contracts. The majority of staff had only one contract and one working site. Staff working in one site did not have travel time included in their contracted hours. For the minority of staff working across multiple sites, four-in-ten employers said they included travel time in contracted hours. Half of the staff working at multiple sites reported having travel time included.

Participants' working patterns were more likely to be 8 hours or less over a 24 hour period. Around a quarter of employers (25%) and a third of staff (35%) do report working 9 hours or more over a 24 hour period and there is some indication that these staff are more likely to be part time or have a zero hours contract.

### Views and experiences of working longer hours

The evidence highlighted the advantages of working longer hours for individuals (reduced child care costs, increase recovery time etc.) but also the disadvantages (reduced family time, tiredness and stress, increased health risks). While there was some evidence to support the outcomes noted, there was not always a clear link between longer shifts and changes in the outcomes.

Around a third of employers did express some concern over the impact of longer working hours on the quality of care although this should be interpreted with caution as the view was split and equally there were employers who did not feel this was the case. When it came to completion of requirements, there was also a mixed picture with some employers seeing the benefits of longer working hours while others were less convinced. The same was true when it came to concerns around safety and working longer hours. While the majority did not feel there were any concerns, a quarter of employers were concerned about the impact of working longer hours on the safety of people using care and support services.

Staff participants tended to reflect different views when thinking about the impact of longer working hours in general terms compared with personal experience. There was a split in responses when it came to general quality of care – almost half agreeing that longer

working hours did impact on quality and the other half disagreeing. However, when it came to reporting personal experience, staff did not feel that longer working hours had an impact on their practice. Staff did feel however that productivity did drop with longer working hours in general terms and again personally there was some difference of opinion with approximately the same per cent of staff stating that it made no difference or that it was sometimes/always the case.

However staff did feel that longer working shifts do impact on their fatigue levels, their irritability and demotivation. Not all staff but a sizeable majority report increases across these measures when working longer shifts. In addition, around two thirds of staff did feel that longer working hours was more likely to be linked to making small mistakes toward the end of a shift.

### **Benefits of working longer hours**

A number of benefits for the organisation were identified through the REA including cost savings, impact on staff absenteeism, continuity of care and planning time. This was reflected in perceived benefits for those using care and support services. However, the evidence is very limited and often perceived rather than accurately measured.

These benefits were reflected in our survey with employers who felt that continuity of care was the biggest benefit (31%), followed by benefits to staff (30%). Almost a quarter of employers felt there were no benefits at all to working longer hours.

### **Drawbacks of working longer hours**

The research evidence did highlight some drawbacks linked to reduced quality, increased fatigue and errors, reduced motivation and performance. As with other parts of the REA, the findings should be interpreted with caution as the evidence is from outside social care and viewed in isolation.

Having said that, employers in our survey highlighted similar drawbacks to the REA. The most common was staff fatigue (65%). A further third of responses focused on the negative impact of longer working hours on the quality of care and 14% with decreased safety of those using services. Demotivated staff and logistical difficulties were also noted as concerns. 14% of responses felt there were no drawbacks to working longer hours.

Responses from the limited number of advisory groups for people who use care and support reflected these concerns and felt that staff were less tired and paid more attention to quality of care when they worked shorter hours.

### **Conclusion**

To conclude, the evidence from the REA would suggest that there are both advantages and disadvantages to working longer hours for individuals. In addition, for organisations there are positives but also potential drawbacks which centre on the quality of care

provided, risks taken and motivation of staff involved. Findings from the survey were similar with a real split in responses from both employers and staff on issues of quality, safety and completion of tasks. However, staff did report a negative impact of longer working hours on their levels of fatigue, motivation and irritability. However, this is in isolation and difficult to interpret without contextualisation of individual lives. There is no right or wrong answer; it seems to work for some employers and staff but not for others. For the adult social care sector flexibility would appear to be key in approaching the issue of longer working hours.

# 1. Background

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The Department of Health approached Skills for Care to conduct research into the impact of longer working hours on the quality of care provided in the adult social care sector. For the purposes of this research, longer working hours can be defined as working 9 hours or more in any one 24 hour period, either in single or split shifts.

This work emanated from the Cavendish Review, requested by the Secretary of State for Health, which highlighted a number of recommendations in relation to both the health and social care environments. One of these recommendations was:

***Recommendation 17:*** *NHS England should include the perspective of HCAs and support workers in its review of the impact of 12-hour shifts on patients and staff.*

Although the recommendation was specifically related to the health care assistants working in the health environment it was felt that a tandem investigation of the issues around long hours should be undertaken with care support workers within the social care environment. Recognising the differences in the two environments and circumstances within which care support workers operate it was agreed at the January 2014 Cavendish Governance Assurance Board that the work in relation to social care should be 'de-coupled' from the tandem project for health.

The social care environment differs considerably from that of health, perhaps no more evident than in relation to potential working practices. This can have a significant impact upon the duration of the working day, or perhaps more accurately the amount of time spent working in a 24 hour period. For example, a care support worker may:

- work more than 12 hours in a day
  - working split shifts
  - having multiple contracts
  - where on-call overnight care is included
- work for more than one employer
- have significant travel time in addition to contracted hours.

There is a large number and variety of employers providing care and support services across England. Rather than a limited number of employers (as in the NHS) there are over 17,000 organisations providing care services across 39,000 establishments. In addition, over 100,000 people using care and support services are estimated to employ their own staff. The workforce is estimated to be over 1.5 million, filling 1.63 million jobs.

The aim of the research is to assess the impact of longer working hours on the quality of care in adult social care. This report outlines the findings from the study with adult social

care employer. A separate report for the health sector conducted by NHS England will be available in due course.

## 2. Research approach

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The research was split into two main phases:

- Rapid evidence assessment (REA): a review of the literature in the area which examines the link between longer working hours and the quality of care
- Quantitative surveys: two surveys, one for employers and one for staff to elicit direct views and experiences of those working in the adult social care sector. For the purposes of this study 'employers' is used to include owners, and those with management responsibilities.

An additional but much smaller emphasis was given to a third strand of the study. Given the necessary timescales and resources available, it was not possible to include people who use care and support services directly in this research. However, the researchers did work through two established groups to invite some feedback from people using care and support services:

- Personal Assistant Framework Steering Group
- TLAP National Co-production Advisory Group

ADASS support for the work was granted before fieldwork took place.

### 2.1 Rapid evidence assessment methodology

While the REA was not a systematic review, the steps taken to identify, appraise and assess the data are comparable with this approach. The key questions addressed in the review were as follows:

1. Is there any evidence from adult social care literature to suggest longer working hours impact on:
  - a. quality of care
  - b. safety of those using services
  - c. ability to complete associated tasks.
2. Is there any evidence of staff preferences in adult social care around longer working hours?
3. What is the impact of longer working hours on organisations?

#### Quality assessment

The REA-approach identified papers, which were checked for relevance and, whether they were a review or a primary study on effectiveness, were assessed for quality (see Appendix 1 for further detail on key search terms, search strategy and inclusion/exclusion criteria).

Following critical quality assessment, key findings were extracted and synthesised by topic for potential inclusion. However, in areas where findings from the synthesised evidence

were inconclusive, weak or lacked transferability across to the adult social care sector, the decision was made not to include them in this report. While attention has been paid to the quality and applicability of the research selected for inclusion, there remain some limitations to the REA, described below.

### **Strengths and limitations of the REA**

The methods used were transparent, systematic in approach and replicable. The approach design included a critical appraisal of the strength and quality of the evidence. However the reader should note that reflecting the rapid approach adopted, this REA does not provided detailed descriptions of all aspects of working longer hours.

The real limitation of the review was the distinct lack of evidence from adult social care. In order to glean what we could from existing evidence, the search had to be extended to include review level evidence from across different sectors and reviews and key primary studies from health care. Note, this is not a comprehensive review of the health literature rather the search had identified evidence which is considered useful and pertinent to the adult social care sector. Only primary studies from health are included and no primary studies outside of health and social care were included. However, systematic reviews often include information from a range of sectors beyond social care and health, and these were included. As a result, there are some limitations with transferable learning for the social care sector because findings from across sectors have been included.

What literature was available has been synthesised to give a concise picture of the available data. Unless significant, studies have not been described in detail but the key points extracted for the reader in order to maximise usefulness.

Another limitation is the focus of the studies, which often use differing definitions of longer working hours and sometimes focus on the overall impact of a longer working week. Alongside this, a range of outcome measures are utilised depending on the focus of the study, e.g. quality of care for people using services, health impact on workers etc. Finally, it is difficult to interpret research in isolation without being fully aware of outside factors that may or may not be linked to longer working hours. This includes things like individual home lives, nature of the work undertaken, breaks during the shift.

Other authors support these difficulties, e.g. Bendak (2003) highlighted some issues facing reviewers in this area:

- Differences between study assessment measures: employee reported information, subjective ratings, workplace information, measures of performance
- Shift design factors: number of consecutive shifts worked, rest periods, shift starting and finishing times
- Uncontrolled differences in the levels of work demands and associated workloads: linked to specific tasks and demands of the role.

The impact of the lack of evidence was an important factor through the REA. It is very difficult to draw conclusions on the impact of longer working hours on the quality of care provided in adult social care when there is very limited evidence to consider. The reader should be aware of this when reading the findings and cautious interpretation of the results is advised.

## **2.2 Survey methodology**

On the basis of the REA, two surveys were constructed, one for employers covering the following:

- Size and sector
- Staff working patterns
- Perception of longer working hours
- Benefits and challenges to working longer hours.

The second was for staff and reflected broadly the same issues as the employers survey but in more detail:

- Sector and working patterns
- Views and experience of working longer hours
- Demographics.

### **Survey distribution**

Given the variance in the sector, and the desire to provide an opportunity for involvement to as many employers as possible, the surveys were distributed online and promoted through a range of networks and partners to ensure full coverage. Reminders were issued over the course of the fieldwork period. Distribution channels included:

- Skills for Care enews
- Skills for Care Twitter feeds
- Skills for Care website and headline banner
- Selected contacts from Skills for Care's CRM system

Externally the following organisations were approached for support and help:

- User led organisations
- Personal Assistant Framework Steering Group
- Unison
- Unite the Union
- GMB union
- Local Government Association
- Learn to Care
- National Care Association
- Care Providers Alliance
- Care England

- ACTAN
- Registered Nursing Homes Association
- NSA

In addition, employers who had taken part in the survey were asked if they were willing to work with us to encourage their staff to participate. Those who indicated support were sent the information for the staff survey, along with a promotional poster, and the offer of paper-based copies if required.

### **Analysis**

We used Survey Monkey to gather responses to the surveys. Any paper copies received were manually inputted into the online system and were included in the analysis. Analysis was completed using Survey Monkey, Excel and SPSS.

### **Limitations of the survey**

The method of blanket dissemination using digital media is pragmatic and effective. The total of 318 survey responses compares well with previous surveys which use this approach. However it does mean that neither confidence intervals nor response rates can be calculated. In addition, while this is a strong number of total returns for a survey of this nature, it is difficult to compare different groups within the achieved sample making findings indicative rather than conclusive.

By using this method it does mean that the sample has the potential to be biased toward organisations and staff who are more digitally aware and comfortable with technology. We tried to mitigate this by offering paper based surveys, raising awareness of the survey among staff through additional routes including unions and through employers themselves. A good percentage of employers did volunteer to facilitate this and 54% agreed to distribute and promote the survey to their staff.

Finally, few questions were mandatory in an attempt to ensure completion of the survey. This however means that the sample size for each question varies slightly. However, the base is noted throughout to allow the reader to take this into account when drawing his/her conclusions.

## **2.3 Advisory groups for people who use care and support**

As stated above, members of two established advisory groups were invited to respond on behalf of themselves and / or people using their services. While both groups were keen to help, this was a difficult route as it was out of the control of the researchers to a degree. The researchers made every effort to engage with the key contacts of the group, providing information about the project for further distribution and reminders to the key contacts. However, the approach was limited and in the end had little buy in from members of the advisory groups.

## 3. Profile of survey respondents

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In total, 318 responses were received and included in the analysis from employers and staff over the two surveys. This is a typical response to a survey of this nature and while some might argue the sample is limited, it gives a fair representation of organisations across the sector and incorporates a wide range of views.

### 3.1 Employers

In total, 187 with line management responsibilities or owners participated in the survey. We will refer to these participants as employers throughout this report.

#### Sector represented

In terms of sector representation, Table 3.1 below indicates the spread of responses across sector compared with the National Minimum Data Set for Social Care<sup>1</sup> (NMDS-SC), which collects information about the adult social care sector as a whole. The survey would appear to have under-representation from local authorities and the third sector, and over-representation among Individual Employers. This in part is explained by some of the recruitment routes. Nonetheless, we do have a good spread of responses across the sector which to some degree represents the main constituents.

**Table 3.1: Employers by sector representation**

	Employers	NMDS-SC
Local authority	18%	30%
Voluntary, community or charity	26%	19%
Commercial or private	42%	47%
Individual employer	11%	2%
Other	3%	2%
Base	183	24,341

#### Services provided

In terms of service provided, Table 3.2 outlines the nature of the services provided by respondents. There is an over-representation from domiciliary care services and care homes, again reflecting distribution routes.

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<sup>1</sup> [www.skillsforcare.org.uk/NMDS-SC-intelligence-research-and-innovation/NMDS-SC/NMDS-SC.aspx](http://www.skillsforcare.org.uk/NMDS-SC-intelligence-research-and-innovation/NMDS-SC/NMDS-SC.aspx)

**Table 3.2: Employers by services provided**

	Survey	NMDS-SC
Domiciliary care	39%	19%
Care home with nursing services	23%	11%
Care home without nursing services	40%	29%
Community day care	14%	17%
Personal assistant	4%	N/A
Other	16%	23%
Base	183	24,341

### **Organisational size**

Looking at organisational size:

- 5% of respondents indicating they employed under 10 (micro)
- 26% employed between 10-24 (small)
- 29% between 25-49 (small)
- 38% over 50 (medium to large)

There is under-representation from micro employers compared with information from NMDS-SC and some over representation from larger employers.

## **3.2 Staff**

A total of 131 responses were received from front line staff in response to this survey. The demographic profile of the sample indicated that the majority of respondents were female (81%), the majority were aged between 35-64 (78%). Most respondents classified themselves as white (88%), with a further 6% classified as Asian/Asian British and 5% as Black/African/ Caribbean or Black British. The majority of respondents were from the UK (87%) with only 7% from a country in the European Economic Area (EEA) and 6% from a country outside of the EEA.

### **Sector represented**

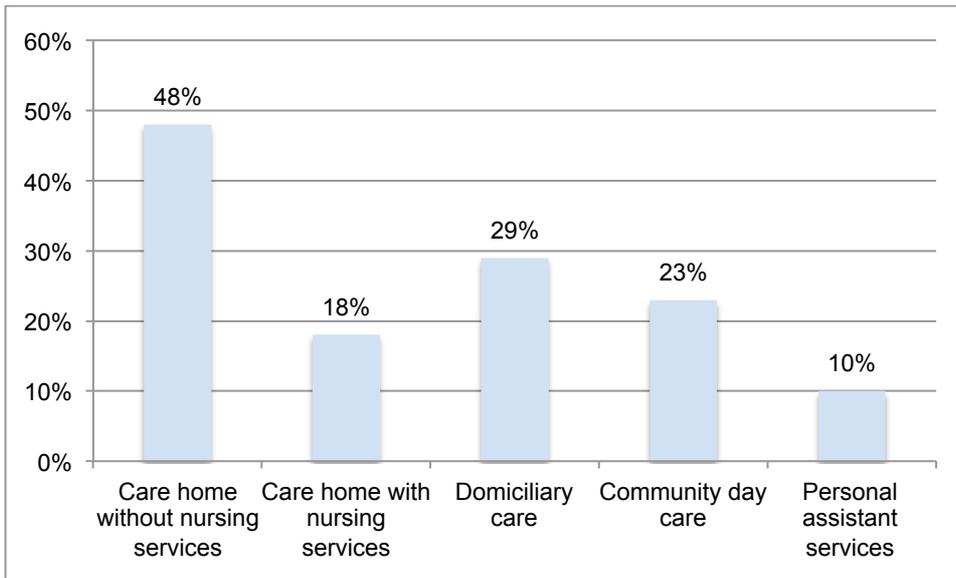
Around half of respondents (53% vs. 61% NMDS-SC) worked in the private sector, with a further 18% (19% NMDS-SC) in local authority and 15% (17% NMDS-SC) for voluntary or third sector organisations. 8% (1% NMDS-SC) of the sample did work directly for individual employers. This reflects worker records from NMDS-SC relatively well although there would appear to be slight over-representation from individual employers.

### **Services offered**

Figure 3.1 below indicates the services represented by staff participants. Around half worked in care homes without nursing services, followed by domiciliary care workers and

community/day care workers. Comparisons with worker records from NMDS-SC indicate that the sample has slight over-representation from care home and personal assistants.

**Figure 3.1: Staff by services offered**



### 3.3 Advisory groups for people who use care and support

There was a limited response to the invitation to advisory groups, that is to say, organisations or membership bodies who work directly with people using care and support services. Only two responses were received. The first from an individual, and the second from an organisation who had consulted with 40 people using services to provide a single response for our purposes.

## 4. Working patterns

This section gives an overview of the type of contracts and working patterns that are available and worked by respondents to the survey.

### 4.1 Contractual options

#### Employers' responses

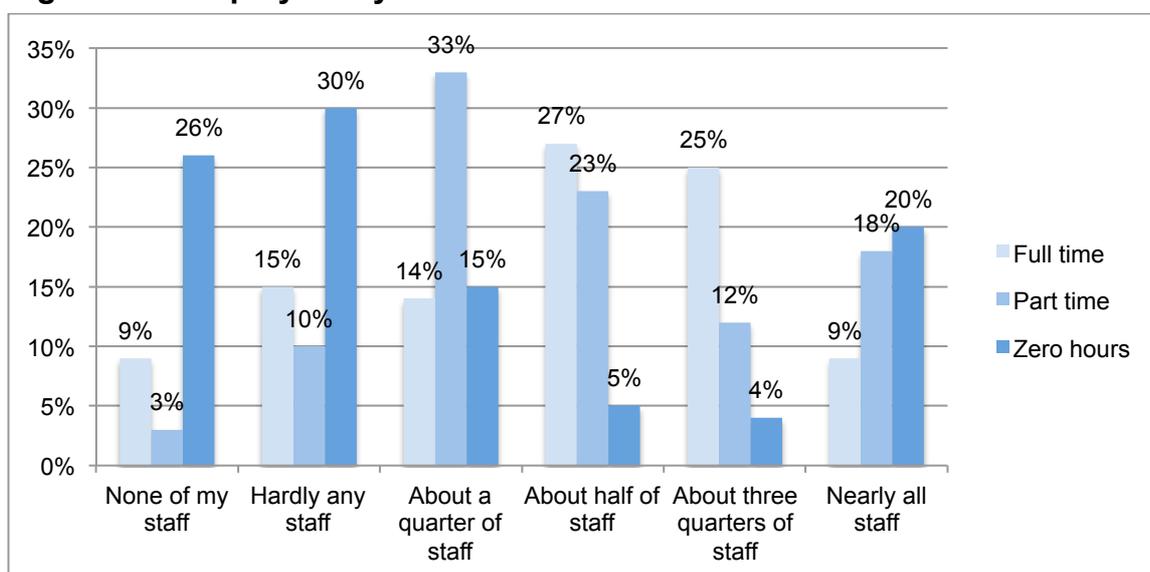
Types of contract currently in place are best illustrated in Figure 4.1 below. It is clear that zero hour contracts have a role in the adult social care with 24% of employers indicating that the majority of staff are employed on this basis. It is worth noting that 26% of employers state that none of their staff are employed on this basis with the remaining making some use of zero hour contracts.

Looking at part time contracts, only 13% of employers do not have any or have hardly any employees currently working part time hours – that is to say under 37 hours a week. Part time workers are a core component of the workforce with 53% indicating at least half staff or more are working with a part time contract.

61% of employers indicated that they operated full time contracts for at least half their staff with only 9% not currently employing anyone on a full time basis.

The data does show a wide spread of types of contracts and within organisations, use of different types and approaches of employing staff. Flexibility seems to be important to employers as it would appear that no single contract type is sufficient to meet the needs of their service.

**Figure 4.1: Employers by current staff contracts**



For the employers involved in the survey, their staff typically worked in one place and travel time to work was not included in their contracted hours (71%). For a small minority of staff working at one site, travel time was included (3%) but this was very unusual. For employers with staff working across multiple sites only, 41% had this travel time included in their contracted hours, for the remainder (59%) travel time was not included but was added to the 'working' day.

### **Staff responses**

The vast majority of staff (92%) currently have only one contract with the remaining 8% reporting they have more than one contractual job. Of this small number (n=10) there were various combinations of employers including care home and day care contracts, contracts with more than one individual employer and care home alongside work for the NHS Trust.

In terms of contracts, 61% of the sample had a full time contract, that is to say 37 hours or more per week, 16% worked part time, less than 37 hours per week and 12% had zero hours contracts. For those on zero hours contracts, the average was around 33 hours per week. It should be noted that average hours worked ranged from 8 through to 60 hours per week.

It would appear that the survey over-represents staff working longer hours on average compared with NMDS-SC data. On average, staff responding to the survey worked 40 hours per week compared to 34 hours per week across the sector more generally (NMDS-SC data).

In terms of contracted hours the majority of staff work in one place (74%) and where this is the case travel time is not included in their contract (with the exception of one respondent). The remaining quarter do work over multiple locations and for close to half (48%) travel time is not included, whilst for the remaining respondents (52%) travel time is included in their contract.

### **Summary**

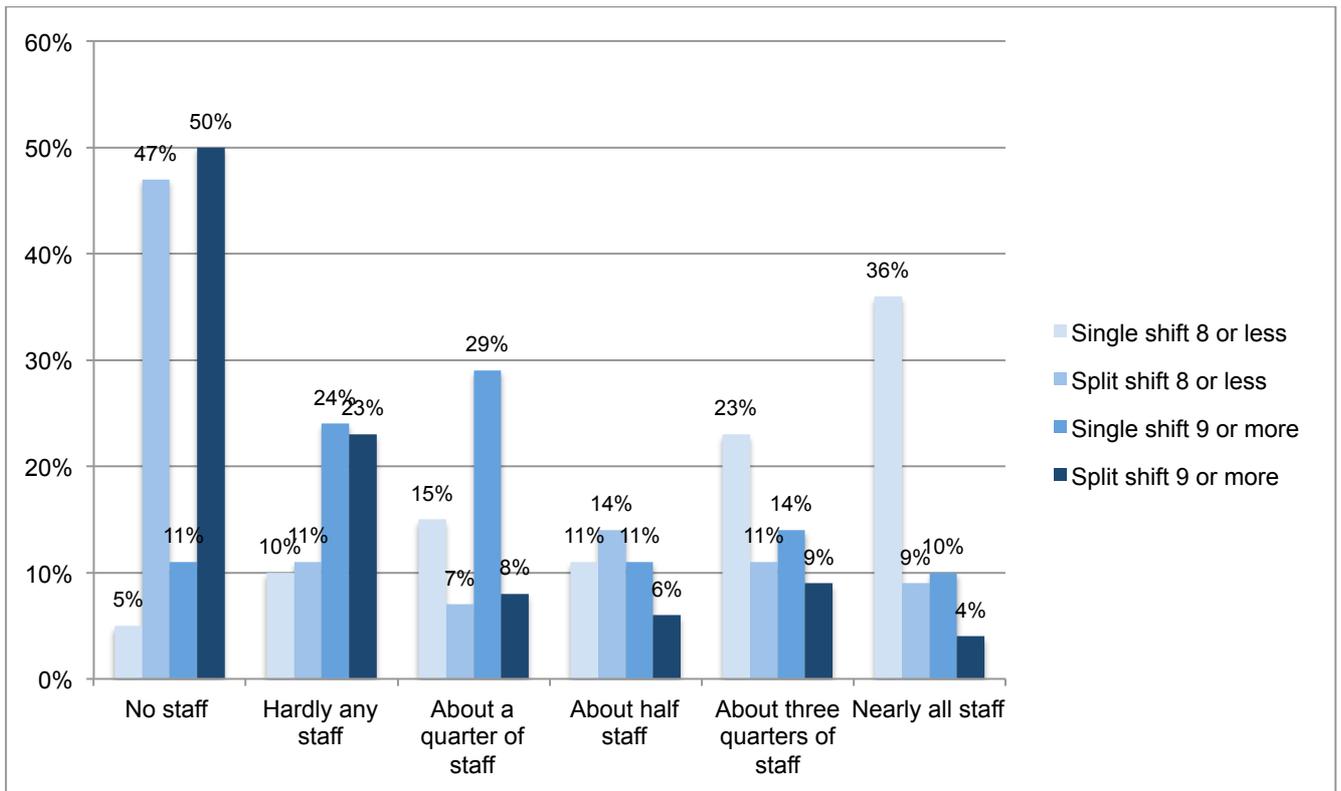
Responses from employers and staff indicate a range of working contracts, including a significant minority of those on zero hour contracts. Most staff had only one contract (92%) and around three quarters of staff tend to have one place of work. From an employer perspective, travel tended not to be included in staff contracts when working in multiple locations although staff were more split in terms of reporting whether travel time was included or not.

## 4.2 Working patterns

### Employers' responses

The survey was concerned with looking at hours worked in any one 24 hour period. The figure below shows the range of working patterns that employers report for their workforce. Again it reflects a broad split but interestingly looking at split shifts, around half of the sample (50% when staff work 9 hours or more and 47% when staff work 8 hours or less) do not employ split shifts. For over half the sample (59%) working a single shift of 8 hours or less was the norm for the majority of staff.

**Figure 4.2: Employers by staff working patterns**



When this information was grouped, the majority of employers report staff working 8 hours or less (75%) compared to having staff who work 9 hours or more (25%). This might be due to bias in our sample, but with the lack of other evidence, it is difficult to comment.

### Staff responses

Staff were asked about their typical working patterns, and where more than one contract was held, to include all working hours regardless of the job.

On average staff worked five days per week over the course of weekdays only (27%) or weekdays and weekends (72%). Staff did not report working only at weekends.

Around two thirds of staff report working shifts of 8 hours or less in a 24 hour period (65%) and the remainder (35%) reported working longer shifts of 9 hours or more across a 24

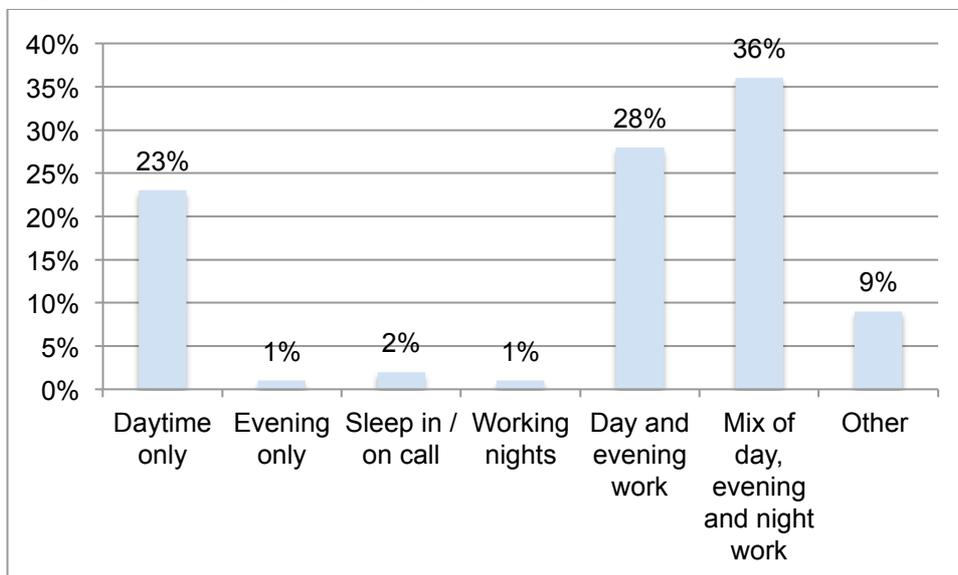
hour period. Interestingly those working longer shifts (i.e. 9 hours or more) were more likely to be on part or zero hours contract. However, the figures for this are small so should be treated with caution (see Table 4.1 below).

**Table 4.1: Staff by contract type**

	Full-time contract	Part-time contract	Zero hours contract	Total
8 hours or less / 24	72.1%	57.7%	50.0%	65.3%
9 hours or more / 24	27.9%	42.3%	50.0%	34.7%
Base	43	26	6	75

In terms of working days, figure 4.3 outlines the spread of work patterns represented in the survey.

**Figure 4.3: Staff by working patterns**



**Summary**

From both employers and staff who responded to the survey, the working pattern reported is more likely to be 8 hours or less over a 24 hour period. Around a quarter of employers (25%) and a third of staff (35%) do report working 9 hours or more over a 24 hour period and there is some indication that these staff are more likely to be part time or have a zero hours contract.

## 5 Views and experiences of working longer hours

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### 5.1 Impact on individual workers and quality of care

#### Research evidence

There was some research evidence available which considered the impact of working longer hours on individual workers both in terms of advantages and drawbacks.

#### **Advantages**

From the literature, staff claim the following advantages to working longer shifts include:

- reductions in costs of childcare
- less travel and associated costs
- an increased non-working days
- increased recovery time each week
- improved job satisfaction.

Sources for this evidence include: Estryn-Behar et al. (2012, large-scale European study), Bendak 2003 (review) Bloodworth (2001 primary study), Richardson et al. (2007 primary study), McGettrick and O'Neill (2006 primary study).

It would appear that there is some support from a workers perspective for utilising longer working hours and shifts. However, the evidence isn't just in one direction as Estabrooks et al. (2012) discovered. In terms of job satisfaction they reviewed selected literature and found evidence to both support and reject the hypothesis that working 12 hour shifts increases job satisfaction.

#### **Drawbacks**

As well as focusing on the advantages, there is evidence from the literature that working longer hours has some disadvantages for a proportion of workers. These include:

- reduced family contact during working days
- difficulty with child care cover
- tiredness and stress
- extended exposure to workplace hazards
- increased health risks.

Sources for this evidence include: Bannai and Tamakoshi 2014 (review), Rodriguez-Jareno et al. (2014 review) Cordova et al. (2012 review), Bendak 2003 (review), McGettrick and O'Neill (2003 primary study)

Bendak (2003) did find some evidence to link high workload levels to excessive fatigue and decrements in performance and alertness when combined with a 12 hour shift.

However, the 12 hour shift in isolation was not the cause of performance changes as other individual factors also play a role.

It is worth noting in more detail findings from the recent review across sectors by Bannai and Tamakoshi (2014). They reviewed the link between longer working hours, defined as more than 40 hours a week or roughly 8 per day, and health outcomes. They did conclude that longer working hours were associated with a depressive state, anxiety, sleep conditions and coronary heart disease. This was supported by data from a large scale European study of nurses (Estryn-Behar et al. 2012) who concluded that staff were taking 12 hour shifts in order to reduce conflicts between home and work. However, this was often at the expense of their own health, with staff burnout highlighted as a concern in their study.

It is worth noting that Ala-Mursula et al. (2006 large scale European study) found that in their study of over 20,000 public sector employees that when workers had control over their daily working hours, the impact of longer hours was reduced and could help protect health and combine the demands of home life with work. However the study also found that long days combined with home domestic work were associated with more sickness absences. Once again, longer working hours cannot be viewed in isolation.

Two studies were identified which focused on feedback from people using care and support services. The first was a small-scale study carried out in the UK, which found that residents in care homes were spending longer in bed than they wanted at night. This was thought to be linked in part to 12 hour shifts, which can limit flexibility in the choice that residents might have. The argument being that there are not enough staff available at the start or end of a night shift.

The second study looked at patient satisfaction in hospital and found some evidence that longer shifts (>13 hours) negatively impacted on patient satisfaction compared to those working shorter shifts (Stimpfel 2012a large scale study). However, this was a study based in the US and may have limited transferability.

## **Summary**

The evidence highlighted the advantages of working longer hours for individuals (reduced child care costs, increase recovery time etc.) but also the disadvantages (reduced family time, tiredness and stress, increased health risks). While there was some evidence to support the outcomes noted, there was not always a clear link between longer shifts and changes in the outcomes. Longer shifts do not come in isolation and there are other individual factors, which play a role in outcome measures and indeed some evidence to suggest that control over working hours can have a positive effect.

Bendak (2003) supports this view and in his review of studies related to 12 hour workday duration, across different sectors, there were mixed results. Some studies found negative impacts, others positives to working longer shifts. Some found mixed results while others found no difference at all. The question then has to become more focused: do longer working hours suit organisations and individual staff members or not?

## 5.2 Employer views of longer working hours

Employers were asked to reflect on a series of statements linked to quality of care, safety and completion of duties in light of shift times. Employers were categorised into two groups for further analysis – those with staff working shifts of 9 hours or more and those where the majority of staff worked 8 hours or less. This was used to give some insight into attitudes based on experience.

### Completion of duties

Respondents were asked about the ability of staff to complete duties within an 8 hour or less shift and 9 hour or more shift.

#### ***Statement 1: Staff are often unable to complete all required of them in 8 hour or less shift***

Over half of employers (52%) disagreed with this statement indicating that staff were able to complete duties within a shift of 8 hours or less. However, 26% disagreed with this statement indicating some degree of support for longer working hours.

#### ***Statement 2: Staff working 9 hours or more is a good way of making sure they finish all that they are required to do***

17% agreed that offering staff longer working hours was a good way of ensuring task completion. However, just under half of respondents disagreed or strongly disagreed with this statement (46%) indicating that longer hours does not necessarily equate to task completion.

It would seem that there is mixed opinion in this area with some employers feeling that longer working hours was one route to ensure tasks were complete. However, this was a minority of respondents. However, around half were not convinced of this and did not feel that shorter shifts equated to tasks being left unfinished.

Employers who tend to have staff that work longer hours (i.e. nine hours or more) are more likely to support the view that working longer hours allows more time for staff to complete duties required of them. For example, 29% of this group disagreed with statement 1 compared to 64% of employers who tended to have staff working 8 hours or less. Employers in this group were less likely to feel that working 8 hours or less impacted on staff fulfilling their requirements.

### Quality of care

Respondents were given the opportunity to reflect on the impact of longer working hours on quality of care.

#### ***Statement 1: Working 9 hours or more has no impact on the quality of care staff deliver***

Just under half of respondents agreed or strongly agreed with this statement (44%). However, 33% disagreed indicating some degree of concern about the quality of care delivered linked to the length of shifts.

***Statement 2: Working 8 hours or less is a good way of making sure quality of care is not affected***

49% agreed or strongly agreed with this statement while 18% disagreed indicating some support for the shorter working shift patterns to ensure quality of care.

Between the two statements however views seem to be split. Some employers feel that there is a link between longer working hours and a reduction in quality whereas others feel this is not the case. When we look in more detail at employers with staff working longer hours, 34% disagreed with statement 1 suggesting that some employers with staff in this position feel that working longer shifts does impact on quality of care. However, it is not possible to tell if this is significant or not as the base for the questions are too small.

**Safety of people using care and support services<sup>2</sup>**

***Statement 1: Staff working 9 hours or more can put the safety of people using care and support services at risk***

28% agreed with this and 44% disagreed with this statement indicating some degree of concern from around a quarter of employers regarding patient safety.

In more detail, a quarter (25%) of employers with staff working longer shifts indicated they have some concerns about safety. This is a substantial minority and while the majority of employers with staff working longer hours would disagree that this puts people more at risk, indicating that there is still a level of concern within the sample. In comparison views are split amongst employers with staff working 8 hours or less, where 32% agreed that longer working hours came with added risk, whilst a similar proportion 34% disagreed with this statement.

**Summary**

Employers did express some concern over the impact of longer working hours on the quality of care although this should be interpreted with caution as the view was split and equally there were employers who did not feel this was the case. When it came to completion of requirements, there was a mixed picture with some employers seeing the benefits of longer working hours while others were less convinced. Finally there was some evidence to support concerns around safety and working longer hours. While the majority did not feel there were any concerns, a quarter of employers were concerned about the impact of working longer hours on the safety of people using care and support services.

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<sup>2</sup> Note only one statement associated with safety as different combinations of wording proved too leading for respondents.

### 5.3 Staff views of longer working hours

Staff were asked two blocks of questions: the first required them to think about different working hours in general, the second to consider this in relation to themselves and their own working situation.

#### **General statements**

##### ***Quality***

Staff were asked to reflect on the quality of care they felt was delivered toward the end of an 8 hour shift compared to a longer working shift. There was a real split in the response and 45% agreed that quality of care did not vary and 43% disagreed with this statement indicating some degree of variation in the quality offered toward the end of a longer shift.

Those who had experience of working longer shifts were slightly more likely to feel that quality did not change toward the end of a longer shift compared with those working 8 hours or less (47% and 42% respectively).

##### ***Productivity***

Staff were asked to think about productivity and 65% felt that staff working longer shifts were not as productive as staff working 8 hours or less. This compared to 22% who disagreed with this statement. This was reflected across the board, whether or not staff had experience of working longer shifts. In detail, 66% and 58% of staff working 8 hours or less and 9 hours or more respectively agreed that productivity decreased with longer shifts.

##### ***Safety***

Thinking about the impact of working longer hours and the safety of people who receive care and support 40% feel that working longer hours has no impact whereas 50% feel that working longer hours does impact on safety. Similar values are reflected when the sample is split into those working longer hours and those not (50% and 54% respectively). This indicates some degree of concern around the impact of working shifts of 9 hours or more and the safety of people in receipt of care and support services from some staff but again a mixed picture.

#### **Personal statements**

Staff were asked to reflect across a range of statements which were more personal and reflective of their own experience. Responses are outlined in Tables 6.1 to 6.6 below and are split into two categories, those currently working mostly 8 hour shifts or less and those working 9 hours shifts or more. It should be noted that those who felt they could not answer the question were removed from the analysis (e.g. had no experience of working longer shifts) and so the base for analysis is reduced. Findings should be treated with caution and indicative rather than conclusive.

### **Fatigue and irritability**

Staff were asked to agree or disagree with the statement *I am more tired at the end of a longer working day compared to working 8 hours or less*. As can be seen from table 5.1 below, the majority of staff agreed with this statement (87%). Staff currently working longer shifts were more likely to feel this was always or at least sometimes the case compared to staff who had previous experience of working longer shifts (90% and 85%).

**Table 5.1: Staff by fatigue**

	8 hours or less / 24	9 hours or more / 24	Total
<b>Base</b>	<b>33</b>	<b>20</b>	<b>53</b>
This is always the case	40%	35%	38%
This is sometimes the case	45%	55%	49%
There is no difference	9%	10%	9%
This is never the case	6%	0%	4%

Two-thirds of staff (64%) did agree that longer working shifts had an impact on their irritability either all the time or some of the time. Around a quarter (23%) felt there was no difference when responding to the statement *I feel more irritable toward the end of working longer hours compared to working 8 hours or less*. This was true for both staff working longer hours and those working 8 hours or less.

**Table 5.2: Staff by irritability**

	8 hours or less / 24	9 hours or more / 24	Total
<b>Base</b>	<b>33</b>	<b>20</b>	<b>53</b>
This is always the case	18.2%	25.0%	20.8%
This is sometimes the case	45.5%	40.0%	43.4%
There is no difference	21.2%	25.0%	22.6%
This is never the case	15.2%	10.0%	13.2%

### **Motivation**

In terms of motivation, staff were asked to agree or disagree with the statement *I feel more motivated at work when working for 8 hours or less in a day compared to longer working hours*.

The majority of staff felt that this was the case (62%), although around a quarter felt there was no difference in motivation between the different shift patterns. Staff currently working longer shifts were slightly more likely to report a decrease in motivation (65%) compared to staff not currently working longer shifts (61%)

**Table 5.3: Staff by motivation**

	8 hours or less / 24	9 hours or more / 24	Total
<b>Base</b>	<b>33</b>	<b>20</b>	<b>53</b>
This is always the case	33%	35%	34%
This is sometimes the case	27%	30%	28%
There is no difference	33%	20%	28%
This is never the case	6%	15%	9%

**Safety**

Focusing on safety, staff were asked to agree or disagree with the statement *I am more likely to make small mistakes toward the end of working longer hours compared to working 8 hours or less*. A substantial proportion of respondents indicated that this was either always the case or sometimes the case (62%) with almost two-fifths feeling there was either no difference or never the case (38%).

**Table 5.4: Staff by safety**

	8 hours or less / 24	9 hours or more / 24	Total
<b>Base</b>	<b>33</b>	<b>20</b>	<b>53</b>
This is always the case	15%	10%	13%
This is sometimes the case	51%	45%	49%
There is no difference	18%	35%	24%
This is never the case	15%	10%	13%

**Completion of duties**

In response to the statement *I am less likely to complete what I need to do when I'm working 8 hours or less*, 41% agreed this was always or sometimes the case. However, a further 40% felt there was no difference and 19% that this was never the case. Staff working longer shifts currently were more likely to feel that there was no difference (58%) and staff 8 hours or less were more likely to disagree with the statement (26%).

**Table 5.5: Staff by completion of duties**

	8 hours or less / 24	9 hours or more / 24	Total
<b>Base</b>	<b>34</b>	<b>19</b>	<b>53</b>
This is always the case	6%	10%	7%
This is sometimes the case	38%	26%	34%
There is no difference	29%	58%	40%
This is never the case	26%	5%	19%

**Quality of care**

Finally, staff reflected on the statement *The quality of care I deliver is the same during a longer day compared to working 8 hours or less*. 70% felt this was always or sometimes the case. A further 19% felt there was no difference and only 10% felt quality of care was impacted on by the length of a shift.

**Table 5.6: Staff by quality of care**

	8 hours or less / 24	9 hours or more / 24	Total
<b>Base</b>	<b>36</b>	<b>22</b>	<b>58</b>
This is always the case	33.3%	40.9%	36.2%
This is sometimes the case	41.7%	22.7%	34.5%
There is no difference	13.9%	27.3%	19.0%
This is never the case	11.1%	9.1%	10.3%

**Summary**

Staff tended to reflect different views when thinking about the impact of longer working hours in general terms compared with personal experience. There was a split in responses when it came to general quality of care – almost half agreeing that longer working hours did impact on quality and the other half disagreeing. However, when it came to reporting personal experience, staff did not feel that longer working hours had an impact on their practice. Staff did feel however that productivity dropped with longer working hours in general terms and again personally there was some difference of opinion with approximately the same per cent of staff stating that it made no difference or that it was sometimes/always the case.

However what was clear from the findings is that staff feel that longer working shifts do impact on their fatigue levels, their irritability and demotivation. Not all staff but a sizeable majority report increases across these measures when working longer shifts.

**5.4 Benefits of working longer hours – organisational perspective****Research evidence**

A number of studies were identified which focused on the comparing different shift patterns from an organisational perspective. Where there are distinct shift patterns, this is a slightly easier task, although not without difficulty. Indeed some argue that for specific roles, e.g. theatre nurses, 12 hour shifts are necessary given the duration of operations etc. (Moore 2012).

***Advantages of longer working shifts***

A number of advantages were identified including:

- Reduction in handovers
- Reduction in costs
- Increase in continuity of care
- Reduction in absenteeism
- Better care planning and more time to deliver
- Increase in ease of staff planning and rota design when working with a 12 hour shift pattern.

Sources for this include: Moore (2012 expert opinion), Basingstoke and North Hampshire NHS Foundation Trust (business paper 2010), Richardson et al. (2007 primary study), Bendak (2003 review),

The reduction in handovers is of particular interest to employers. In sectors where there are distinct shift patterns, for example nursing, the move to 12 hour shifts has meant a reduction in the number of handovers and therefore the number of points during the day where a ward might be double staffed which in turn has financial savings for the organisation (Moore 2012 expert opinion, Bendak 2003 review).

Basingstoke and North Hampshire NHS Foundation Trust outlined further organisational benefits in their QIPP paper (2010). They suggest that there are savings to be made by moving from a 3-shift day to a 2-shift day. In this particular Trust covering a population of 300,000 the estimates stand at £333,000 per 100,000 population.

While not evidenced the paper suggests there are potential improvements in clinical quality lined to greater continuity of care and a reduction in points of transfer of information and provide some anecdotal evidence to support this. The paper also claims that there is a theoretical improvement in safety with greater continuity of care and reduction in points of information transfer.

Finally they claim that while not formally measured, staff prefer 12 hour shifts for reasons outlined in the section above. While this paper was based on some evidence, more is required to fully support claims made. What is not in doubt is the financial saving outlined which in itself is an advantage for organisations.

The point linked to better staff planning is uncertain though as currently there is little evidence relating to documentation and planning of care linked to working hours. Richardson et al. (2007 primary study) did describe a small number of older studies which indicated that it was either easier or made no difference to completing documentation. They found that staff working longer shifts had no difficulties in completing the associated paperwork but that is not to say the quality was better or that staff working shorter shifts did not complete the necessary documentation.

### **People using care and support services**

For people using care and support services there were some perceived benefits associated with working longer shifts although this was limited:

- Increased continuity of care
- Better relationships
- Improved communication
- More time to talk to staff.

Sources include: Bloodworth 2001 (UK primary study) Richardson et al 2007 (Primary study UK)

### **Summary**

A number of benefits for the organisation were identified through the REA including cost savings, impact on staff absenteeism, continuity of care and planning time. This was

reflected in perceived benefits for those using care and support services. However, the evidence is very limited and often perceived rather than accurately measured.

## 5.5 Employer view on benefits of working longer hours

Employers who participated in the research were asked to state the benefits of working longer shifts, that is to say, 9 hours or more in a 24 hour period. In total, 133 respondents answered this question but in the analysis, some responses fell into more than one category resulting in a total of 181 statements that were categorised. These are summarised in table 5.7 and discussed below in more detail.

**Table 5.7: Summary of benefits described by employers**

Continuity of care	31%
Staff benefits	30%
No benefits	23%
Necessary to cover night shifts	14%
Easier logistically	7%
<b>Base</b>	181

### ***Continuity of care***

The most common response (31%) was the consistency and continuity of care that longer shifts could offer people using care and support services.

*“Continuity of care is very important. Working longer shifts mean that clients see the same people for longer periods of time which most find comforting.”*

Alongside this was a noted reduction in the number of handovers, which was seen as a benefit for some from a management perspective (5%).

### ***No benefits***

Around a quarter of the responses (23%) indicated that there was no benefit to longer working hours from the point of view of a manager.

*“There are no quality benefits at all”*

Having said this, this respondent did go on to highlight the logistical benefits for organisations and management. This was noted by a further 7% of the responses to this question which indicated that covering and managing the rotas was simpler when staff worked longer shifts.

*“The benefit for the organisation? The rota is easier to cover”*

### *Benefits for staff*

Some benefits were noted for staff.

- 18% of responses indicated that staff who worked longer working shifts had to work fewer days so had a better work/life balance and reduced costs:

*“More quality time off work for rest and relaxation”*

Other benefits for staff noted were:

- Less travel for staff (7%)
- Increased flexibility for staff (5%)

### *Linked to night shifts*

Another benefit was the need for longer working shifts to cover night shifts where they were seen as appropriate to provide suitable levels of care that are required (14%).

*“Most of our shifts worked over 9 hours or more are night shifts and provide suitable levels of care at the times we require.”*

## **5.6 Drawbacks of working longer hours**

### **Research evidence**

From an organisational perspective there are also potential disadvantages:

- Increased moonlighting among staff reducing recovery time
- Potential for increase fatigue,
- Increase in errors
- Reduction in productivity
- Reduced performance and demotivated staff
- Lower quality of care.

Sources: Griffiths et al. (2014), Stimpfel et al. (2012b US large scale study) Wagstaff and Sigstad (2011 review) Olds and Clarke (2010, large scale US study), Estabrooks et al. (2009 review), McGettrick and O’Neill (2004 primary study)

Griffiths et al. (2014) conducted a large scale European study which included the UK. The focus was on hospital nursing staff and they asked nurses to reflect on their quality, safety and care left undone. They did find evidence in their study that nurses working 12 hours or longer reported lower quality and safety and an increase in care left undone compared with staff working 8 hours or less.

A review by Wagstaff and Sigstad (2011) did identify 14 studies from a wide search and presented findings that were relevant to the health sector. In particular they found that work periods over 8 hours carry an increased risk of accidents (not including ‘pure’ night work).

However, Estabrooks et al. (2009 review) examined the links between shift length on the quality of patient care and health provider outcomes. They did find some weak evidence to link shift length with nursing errors. However, their overall conclusion was that the quality of studies was generally low and results were equivocal with insufficient evidence to determine the effects of shift length on either outcome. They felt more studies were needed to examine the effect of shift length on patient and health care provider outcomes.

## 5.7 Employer views on drawbacks of working longer hours

Respondents were also asked to reflect on the drawbacks of working longer hours. In total, 133 respondents produced a total of 224 responses. Table 5.8 provides a summary which is described in more detail in the text.

**Table 5.8: Summary of drawbacks described by employers**

Staff fatigue	65%
Reduced quality	32%
Increased risks	14%
Demotivated staff	14%
Logistical difficulties	7%
No drawbacks	14%
<b>Base (no of responses)</b>	<b>181</b>

The most common response was that of staff feeling tired from working longer working hours. 65% of responses focused on this and the following quotes indicate the concerns employers have around this issue, often linked to quality of care, safety and completing tasks.

*“They get tired and stressed and lose their patience quickly”*

*“Staff become tired. They may not be fully concentrating which would impact on the service delivery and pose a risk to service users and staff members”*

*“Staff become tired, less able to cope with the complexities of care for vulnerable people. They are more inclined to reach a point where they begin to leave things for the next shift”*

Reduced quality was also identified as a category in itself with 32% of responses focusing on this. In particular concentration, motivation and productivity were seen as suffering as a result of longer working hours.

A further 14% of responses highlighted increased risks as a problem associated with longer working hours.

*“There are more chances of making a mistake toward the end of shift”*

Demotivated staff was also a category which employers highlighted which again is linked to tiredness but was noted separately by 14% of the responses given.

*“The drawbacks for staff working longer than 9 hours are reduced enthusiasm for the job”*

Some did note operational drawbacks associated with longer working hours including difficulties in finding staff to work overtime to cover holidays or sickness. So, on one hand rotas become easier to complete but more challenging when staff are not available.

Finally 14% of responses indicated that there were no drawbacks to working longer hours. This sometimes came with conditions, for example, when shifts were spread out, when rest periods were planned and if the job wasn't physically demanding.

## **5.8 Advisory group views on drawbacks of working longer hours**

Only two questionnaires were returned from the advisory groups, one from an individual and a second from a Trustee of several charities. Obviously one response represents an individual viewpoint and the other that of a wide range of people using services (40 people fed into the response). The feedback from this aspect of the work was clear. Longer working hours leads to staff tiredness, a decrease in care quality, an increase in risk and no certainty that longer working hours equates to completion of caring duties. There was the view that working 8 hours or less gives a better work life balance and improves the wellbeing of staff which in turn improves quality of care. It is difficult to comment further beyond indicating the need for more work with people using care and support services.

## **5.9 Additional comments**

Respondents were given some space to comment more generally on their views and experiences of working longer hours. In total 61 responses were received, the most common of which indicated that longer working shifts have their place in the delivery of flexible care and support services (38%). For example, to cover night shifts, to offer flexibility to staff with various home responsibilities, to allow for capacity to cover illness and holiday periods. Also on the supportive side, 21% felt that working longer hours was a good thing for staff who often preferred to work fewer days in the week. However, a number of responses (28%) indicted that 8 hours was the maximum staff should work in order to make sure staff are fit to provide the best quality of care.

## 6 Conclusions

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This study reflected on current literature and feedback from staff and employers on the impact of longer working hours across different measures, including quality of care.

However, it is difficult to draw any firm conclusions or direction of travel from this research as the findings highlight the following issues:

- Existing evidence in this area for the social care sector is very limited
- The focus of much published literature is on the impact of longer working hours on staff and wellbeing rather than quality of care
- A number of studies have been conducted outside the UK which have limited use for transferability
- There is no clear causal link between longer working hours and quality of care as studies do not take into account contextual factors
- Studies reflect a mix of views when it comes to considering the impact of longer working hours on quality of care.

From the evidence available there is some support for working longer hours as a positive option for staff, however drawbacks like fatigue and stress are concerns for employers. In particular, when linked to quality of care provided. While there are organisational advantages to longer working shifts, there is also some limited but growing evidence to link a decrease in quality and safety to working longer shifts. However, this is drawn from evidence outside of social care and we need to think carefully about the transferability of findings. As others have pointed out, personal circumstances, job roles, breaks, shift patterns, all impact on individual factors such as fatigue. Without considering these contextual factors, it is difficult to dismiss the role of working longer shifts on the basis of the evidence provided.

The one thing that is clear is the lack of evidence available in social care to make an informed decision about the impact of longer working hours on the quality of care provided. Even when the search is broadened, the limitations of the evidence are such that many researchers conclude by stating the need for a better framework in which to operate as there are so many variables to balance and include.

From the employer survey there was a good deal of variation in response to the statements around quality, productivity and completion of care duties and longer working hours making it difficult to draw any firm conclusions. For example, there was some evidence that employers supported 8 hour shifts but diverging views when asked if working longer shifts had a direct impact on care quality. Again there would appear to be some employers who have concerns in this area, but others who don't. The same is true for safety issues and employer views – some feel longer working hours bring increased risks, while others do not.

Staff were more mixed when it came to thinking about safety in general terms and making small mistakes and errors in personal practice. When thinking generally about the workforce, there was a split in responses with similar numbers of staff feeling that longer working hours had an impact on safety and those who didn't feel this was the case. When it came to personal practice, however, staff were more likely to admit an increase in small mistakes toward the end of a long shift. This is interesting to note and further research into this area would be able to qualify what this means in real terms and the potential impact.

There was a good deal of variation in response to the statements about productivity and completion of care duties and longer working hours making it difficult to draw any firm conclusions. Staff did feel that working longer hours was not associated with increased ability to complete the job but did report that working longer hours impacted negatively on other aspects of their health and wellbeing. For example, the majority staff reported increased tiredness, demotivation and levels of irritability. This was taken in the context of a working week and the survey was unable to gather contextual information from staff. It would be interesting to look at this in more detail, contextualise responses and consider how longer shifts fit into the work life balance.

Thinking ahead, flexibility linked to workers, organisations and people using care and support services could be more appropriate than a blanket approach to endorsing or refuting longer working shifts. The research has indicated that respondents, both employers and staff, hold a range views in this area. It would appear that there is no right or wrong answer but rather a spread of opinion. It seems to work for some employers and staff and not for others.

Indeed this is reflected in other literature, for example Ekosgen (2013) found that some staff were looking for longer hours. When flexibility to match staff working hours to the hours that staff wanted there was an increase in retention. This was supported by Olsen et al (2010) who found that flex in working hours may benefit employees who work irregular hours. Finally, Richardson et al. (2007) followed up by recognising the role of 12 hour shifts and suggesting that enough rest periods, time in between shifts and other similar solutions could be introduced to help with any staff fatigue or potential burn out.

Bannai and Tamakoshi (2014) argue that the next steps should be a clearer framework and definitions of what longer working hours and shift work means. Ferguson et al. (2012) takes this a stage further and argues that the next steps for work in this area would be to develop a research framework that can take account of the various different factors that might impact on the outcomes being examined.

It would appear that a focus on the individual situations rather than concern with the general workforce might be most appropriate to maintaining quality, taking into account the specific workplace, worker and job would help.

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## Appendix 1: REA methods in detail

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Searches were conducted through electronic databases including Skills for Care Research Knowledge Base, Scopus, CareKnowledge and Social Care Online. To help with the identification of unpublished literature extensive web searches were conducted using the key words previously identified.

### Key search terms used

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Working hours	/12 hour shifts /long* working hours /shift patterns /overtime /work* hours /flexible working /split shifts /multiple contract /work* patterns
Outcome	/effective* /impact /outcomes
Resident	/quality of care /safety
Social care staff	/stress /burnout /fatigue /tiredness /sickness /absent*
Other sectors	/nursing /long working hours nursing

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\*Incomplete words used to search for multiple phrases at once

## Search strategies

Our search strategy for the REA involved a search of key database:

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NHS Evidence (includes Cinahl, Embase, PsycINFO, Cochrane Library, MEDLINE, British Nursing Index)	Social Care Online
SfC Research Knowledge Base	Scopus
Trip	Applied Social Science Index and Abstracts (ASSIA)
Social Science Citation Index (SSCI)	Google Scholar

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## Inclusion criteria

Inclusion criteria gave clear parameters for the search to be conducted.

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Year	Published during or after 2000
Language	Published in English
Nature of evidence	Peer-reviewed international literature Primary studies from the UK Unpublished studies from the UK Large scale quantitative studies from outside the UK
Study design	Review of reviews Evidence reviews (systematic, rapid, scoping) Primary qualitative and quantitative studies
Topic	Working longer hours Quality of care Patient safety Impact of longer working hours
Populations	Adult social care staff People using care and support services
Settings	All adult social care settings Nursing settings
Outcomes	Focus on impact of long shifts on: Quality of care Safety Finishing tasks

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**Exclusion criteria** was also set to exclude certain types of studies

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Year	Published before 2000
Language	Not published in English
Nature of evidence	Small scale quantitative studies from outside the UK Qualitative studies from outside the UK
Study design	Expert opinion
Topic	Working longer hours Quality of care Patient safety Impact of longer working hours
Populations	
Settings	
Outcomes	

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### **Quality Assessment Procedures**

In order to assess the strength of the evidence of relevant primary studies into effectiveness the following questions were posed:

- Is the study relevant to the review questions?
- Are the methods valid and appropriate (design, sampling, data collection)?
- Is there a strong and appropriate analysis of the data and presentation of the findings?
- Have the findings been interpreted appropriately?
- Have the limitations of the study been considered and amendments made to reflect these?

For reviews of evidence the following questions were posed to assess the quality of the review:

- Is the study relevant to the review questions?
- Was there a comprehensive search strategy stated and conducted?
- Was the quality of individual primary studies assessed?
- Were results from primary studies integrated into overall findings adequately?
- Is there adequate data to support conclusions of the review?

For both types of papers a study was classified as 'strong' if four or five of the stated criteria have been met, 'adequate' if two or three of the stated criteria have been met or

'weak' if none or one of the stated criteria have been met. Only strong and adequate studies were taken forward for data extraction. There was one exception to this: in the case of weak studies where no other evidence is available, these will be included in the narrative report with cautionary notes.

### **Data extraction**

The following information was extracted directly into Endnote for individual studies:

- study detail;
- target population and setting (should already be entered);
- intervention or study aim;
- general description of study (e.g. design, scale of study, strength of study);
- relevant findings;
- commentary on study.