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**Article:**
Sworn, K. orcid.org/0000-0001-6247-4007 and Booth, A. orcid.org/0000-0003-4808-3880 (2020) A systematic review of the impact of 'missed care' in primary, community and nursing home settings. Journal of Nursing Management, 28 (8). pp. 1805-1829. ISSN 0966-0429

https://doi.org/10.1111/jonm.12969

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# A systematic review of the impact of 'missed care' in primary, community and nursing home settings

Journal of Nursing Management

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**Abstract**

**Aim** To explore "missed care" in relation to primary and community care, including nursing homes to build an understanding of implications for patients, public, politicians and policy makers.

**Background** Missed care occurs when any aspect of required patient care is omitted or delayed. Little attention has examined missed care in primary, community and nursing home settings.

**Data Sources** PubMed, CINAHL, Google Scholar (July 2018).

**Results** The search identified 15 metrics papers (2004-2019) and 8 empirical papers (2015-2018) (5 studies) Empirical studies were rated as good quality. Missed care impacts on safety in community/primary care contexts and differs from acute care. Causes of missed care include acuity, complexity of cases, volume of care, organisational factors.

**Key issue** Metrics have been adapted to community/nursing home contexts but in a non-standardised way. Tools are required to evaluate missed care within a culture of personal reflection and quality improvement.

**Conclusion** The prominence of missed acute care should not distract from its impact in primary, community care and nursing home settings. Nurse leaders should consider causes for missed care, how it is conceptualised and evaluated.

**Implications for nursing management and leadership** This review offers evidence for exploring, measuring and evaluating missed care locally.

**Keywords:** missed care, metrics, evaluation, primary care, nursing homes

**Introduction**

Appropriate nursing staffing levels are critical to the delivery of safe and effective care. The planning and delivery of safe and effective care is complex. "Safe and effective staffing" means that health and care services have the right numbers, with the right skills, in the right place at the right time (RCN, 2018). Having the right number of appropriately qualified, competent and experienced nurses has been reported to lead to improved patient outcomes, reduced mortality rates and increased productivity. In May 2017, the Royal College of Nursing published *Safe and Effective Staffing – the Real Picture* (RCN, 2017). Missed care represents a challenge to both the safety and quality of care whereas a nurse's knowledge of their possible responsibility in delivering suboptimal care has been shown to impact on retention (Attree, 2007; Kalisch, 2006; Vogus et al, 2014).

Previous research on missed care in non-acute settings has been appropriately described as "sporadic". In Ireland the Phelan Report (2016) examined the context of community nursing (Public Health Nurses and Community Registered General Nurses) in Ireland. Against a static backdrop the study examined the concept of missed care using a health economics lens. It used a community based missed care survey to look at community nurses' experience of missed care within a one-week timeframe.

The first outputs from the RCN's Strategic Research Alliance with the University of Sheffield saw a team of systematic reviewers, based in the School of Health and Related Research, produce a scoping review of the wider research on the impact of staffing levels on patient care (Sworn & Booth, 2018). Based on scoping from this study a follow up systematic review of research was commissioned on the impact of missed care in primary and community settings (including care homes) (Sworn & Booth, 2019). Primary and community settings commanded a particular focus for a systematic review given that the scoping review had found that research focused on acute settings. Furthermore, the structural complexity of missed care in diverse community, primary care and care home contexts (with, for example, delivery through contracted care sector organisations) suggested a particularly rich focus for exploration.

Possible causes of missed care in a community context are rehearsed in the Phelan Report:

• too few nurses relative to increasingly complex needs within the community;

• the widening remits of nurses due to cuts to services provided by other professionals in the community;

• early release of clients from hospital in the quest to free up bed space;

• shortages in admin staff lead to nurses spending more time on paperwork at the expense of their nursing duties.

Overall evidence from the acute sector suggests that the patient outcomes most significantly affected by registered nurse staffing numbers are mortality, care quality, missed care and adverse events (for example, infection, pressure ulcers, medication errors). Studies have found evidence for a positive association between an appropriately planned nursing skills mix and patient safety outcomes.10 We wanted to examine the extent to which similar findings might arise from a primary and community care setting. We therefore chose to conduct a systematic review to explore missed care; examining conceptual models, empirical studies and metrics. This paper focuses on the empirical studies and metrics. Conceptual models are reviewed in the main study report. We found no recent systematic reviews on the topic.

**The aim of the study and research questions**

The aims were:

- To explore concept of "missed care" as it relates to safety in primary and community care, including nursing homes.
- To build an understanding of the implications of missed care for patients, and for the system relevant for the public, politicians and policy makers.

Therefore, the review sought to address the following central research question:

How does 'missed care' impact on safety in primary, community and nursing home settings?

**Methods Design**

The initial scoping review had followed six key steps:

1. Identifying the research questions
2. Identifying relevant studies
3. Study selection and quality assessment
4. Charting data
5. Summarising and reporting results
6. Consultation exercise.

## Search strategy and inclusion criteria

A systematic search was conducted in PubMed, CINAHL and Google Scholar in 2018. Search strategies and search terms (Table 1) were modified for the different databases. The aim was to obtain as comprehensive set of search results as possible; different search terms were combined to cover the topic of "skills mix and patient outcomes". Searches were limited to the English language. Only studies published between 2000 and 2018 were included. A follow-up search of CINAHL, given previous findings on distribution of the literature (Sworn & Booth, 2018), was conducted specifically for items on "missed care". Supplementary searches were conducted of key reports, systematic reviews, theses references, together with studies already known to the authors. References for included studies were checked and citation searches were conducted using Google Scholar via the Publish or Perish™ search engine.

For inclusion in this review, studies would report missed care-related safety outcomes (including care left undone, unfinished or rationed). Causes and implications of missed care, or any interventions that sought to minimise or identify missed care, would be examined. For inclusion, studies had to specify nursing care. In the case of studies, where analysis did not distinguish between nursing and care delivered by a primary care physician (e.g. Poghosyan et al, 2017), a study would be included on the basis of explicit reference to nursing care. The population was adult patients in primary care or community care settings (including nursing homes) in comparable health service contexts: Australia, Canada, Ireland, New Zealand, UK and the USA. Missed care outcomes (quantitative or qualitative - Including health-based, organisational, psycho-social or economic outcomes) would be documented with interventions being compared with usual/current practice or care. Papers relating to metrics for missed care observed broad inclusion criteria, not restricted by geographical locale or study type (table 2). We were therefore able to select, map and describe the metrics methods which had been used. For this reason, search parameters captured non-empirical papers that critiqued metrics as applied to multiple contexts or settings.

Following discussions with the Royal College of Nursing it was agreed to exclude missed care in long-term care settings. Studies would be reported in the English Language. However, no restrictions by date were applied.

**Search and screening process**

The first author (KS) selected and evaluated all the articles. Titles and abstracts were screened and those not meeting the inclusion criteria were excluded.

### Identifying relevant studies

Empirical studies were restricted to primary research studies conducted in the big five countries most influential on UK practice (i.e. UK and Republic of Ireland; Australia, Canada, New Zealand and USA). No limitations were applied to papers critiquing missed care metrics. Date limits were not applied. The internal report also included an examination of theoretical or conceptual models for missed care but these are considered outside the focus of this particular paper.

#### *Search strategy*

Construction of search concepts and the terms used are shown in Table 1.

### Inclusion and exclusion criteria

Inclusion and exclusion criteria were operationalised at both literature search and abstract sifting stage. In addition, there were separate inclusion sub-criteria for the two specific review questions (Table 2). The metrics papers identified could reflect any study or publication type and originate from any country.

### Study selection

Study selection was undertaken by the Research Associate. All retrieved title and abstracts were downloaded into Excel. Items were prioritised for selection by searching for keywords associated with the review question and research design types that were strongly indicative of an empirical study (e.g, cross-sectional design). Clarification of inclusion/exclusion criteria was sought from the methodologist (AB) in cases that were unclear or where the initial scope required further refinement. A proportion of the records were double screened by another member of the project team (JS). Inconsistencies were resolved by consensus or by referral to the methodologist.

### Charting data

Data was input into Excel and characteristics were extracted. The following characteristics of each study were extracted; authors, publication year, country of origin, aim of the study, sample

size and study context, method, outcomes and quality assessment (Tables 3 to 7). In-depth data was extracted for each study in the categories which emerged from the data (types, causes and outcomes of missed care.

**Quality assessment**

Two tools were used to assess the quality of included studies:

1. **Specialist Unit for Research Evidence (SURE) - Questions to assist with the critical appraisal of cross-sectional studies.** Produced by the Specialist Unit for Review Evidence (SURE) unit at Cardiff University. This 12-item (SURE) (2018) checklist is one of several checklists designed to help identify the how error and bias can distort research results. Based on collective team experience and research this collection of checklists helps in incorporating assessments of individual research studies for inclusion in a narrative summary.
2. **Critical Appraisal Skills Programme (CASP) - 10 questions to help you make sense of a Qualitative research.** Produced for the Critical Appraisal Skills Programme (2018) to help busy decision-makers assess the implications of a single published study the checklist has undergone several iterations but remains the most commonly used tool in qualitative evidence syntheses.

Given the need to map, as well as to evaluate, the topic area no studies were excluded on the basis of the quality assessments. However, study quality was factored into an assessment of the overall contribution of each study. Two authors evaluated all eligible articles individually and discussed any differences in quality assessment to make a decision on the quality of the study. The quality appraisal of each study is reported in Table 6.

This included the Quality assessment element to gauge limitations of the evidence, according to the research design either the SURE or CASP tools were applied.

Metric based examples, from beyond and yet informing community contexts, were identified and appraised according to strengths and weaknesses. Empirical findings were critically examined against the metric papers as well as alongside considerations identified from the separately reported review of conceptual models. The metrics papers were not quality

assessed owing to the fact that no appropriate checklist has been identified for this type of study. from the main report (Sworn & Booth, 2019).

### Summarising and reporting results

Analysis of review results began with a narrative synthesis of study characteristics. Synthesis involved cross-study examination of key factors relating to missed care in relation to findings, context and perspective. Metric based examples were identified and appraised according to strengths and weaknesses. Empirical findings were critically examined in light of the theoretical and metric papers identified. Key findings were subsequently imported into a framework based on the GRADE-CERQUAL approach (Lewin et al. 2015) to provide a transparent basis for assessing the strength of evidence and gaps and making evidence-based recommendations for policy makers.

## Results

### Characteristics of the included studies

The reviewers identified 477 records from bibliographic databases and a further 791 records in Google Scholar, in addition to those identified from a previous scoping search on skill mix and nursing quality.

#### *Metrics papers*

The sifting process identified 15 papers that examined the role of metrics in assessing mixed care (Table 3). These fifteen papers were published between 2004 and 2019. Eleven papers were authored from the USA with the remainder from Australia (n = 1) Switzerland (n = 2) and New Zealand (n = 1). None of these papers was written in a UK context. Seven of these papers related to the development of a specific tool (Castner & Dean-Baar, 2014; Hamilton et al, 2017; Jones et al, 2015; Kalisch et al, 2009a; Kalisch et al, 2009c; Poghosyan et al, 2019a; Poghosyan et al, 2019b), five explored important concepts of measurement (Jones et al, 2016; McKelvie, 2011; Poghosyan et al, 2017; Sochalski 2004; Van Fosson et al, 2016) and three papers explored the scale of the problem (Ausserhofer et al, 2014; Kalisch et al, 2009b; Schubert et al, 2008). Metrics papers were not assessed for study quality.

Examination of the metrics papers focused on the rigour and relevance of the different measurements. Historically, the metrics available for missed care have operationalized

different key concepts identified by experts as causes of missed care. Kalisch et al (2009a; 2009b; 2009c) established the missed care metric. This metric began in secondary care contexts and their work ensured the metric met robust psychometric standards within these contexts. Early discourse included Sochalski (2004) who explicated the interrelationship between structure and processes of care in health organisational contexts as key to understanding how both influence quality. Next, followed other metrics such as unfinished care (Van Fosson et al, 2016), developed for national US performance indicators for nursing care systems. Other researchers began to link concepts and corresponding instruments to organisational factors as causes of missed care. For example, Ausserhoffer et al (2014) linked care left undone to both organisational factors and the development of informal task hierarchies within their organisational setting. Authors reported the results of the RN4CAST study, finding a high prevalence of care left undone across all European countries. Rationing of care also emerged in relation to acute care settings (McKelvie, 2011; Schubert et al, 2008). Missed care, and specifically the missed care survey, are not tailored for primary care contexts. Previous research included the development of sub-scales supports the measurement of nursing error/antecedents to error in various inpatient settings: Acute Care Missed Nursing Care, Errors of Commission, Workload, Supplies Problems, and Communication Problems. Activities of Daily Living was not considered appropriate for an in-patient setting (Castner & Dean-Baar, 2014).

Critics noted potential biases when measuring unfinished care via the MISSCARE and PIRNCA surveys in the context of quality assessment of care, noting they are not interchangeable instruments (Jones et al, 2016). Others have offered new conceptualisations such as the components of sociology of nursing time (viewing shared time as organisational time to evaluate workflow) (Jones et al, 2015) which clearly links organisational factors to safety. Ongoing work seeks to refine a single item measure for missed care in individual practice settings (including the community) for global application using data from a large study in Australia for identifying poor quality care (Hamilton et al, 2017). Most recently, Poghosyan et al (2017, 2019) identified gaps in measuring missed care through error of omission specific to primary care contexts. The error of omission metric focuses on strengthening organisational attributes of practices, improving teamwork and communication, and assigning manageable

workload. The 24 psychometrically tested items cover Patient Self-Management, Family Engagement, Follow-Up, and Care Integration domains of omissions in primary care.

*Empirical studies*

In addition, the analysis of empirical studies identified 8 publications for inclusion (See Table 5). The 8 publications reported 5 studies, undertaken in three countries: Australia, Ireland and the United States. All studies were published between 2015 and 2018 with all bar one using recently collected data (Henderson et al (2016) included data from a MISSCARE survey dated 2012). The total number of participants was 9,182 and the median was 922 (283-4431). Four studies were rated as low risk of bias, with one (Blackman et al, 2015) having some limitations.

Therefore, a total of 23 papers are included in this systematic review.

Summary of the Included Metrics Papers

Four different tools and methods were identified from 15 included metrics papers. These were:

1. The Missed Nursing Care Survey (MISSCARE)
2. Perceived Implicit Rationing of Nursing Care (PIRNCA)
3. Single-Item, Global, Estimate of Missed Nursing Care measure
4. Errors of Care Omission Survey (ECOS)

Characteristics of these tools and methods are briefly discussed.

**1. The Missed Nursing Care Survey (MISSCARE)**

The MISSCARE survey is the most established and most used tool. It was developed by Beatrice Kalisch et al. (2006; 2009a, b) and has been validated psychometrically for use in acute hospital settings in the US and internationally (Kalisch et al. 2012; Kalisch et al. 2013; Kalisch and Williams 2009; Blackman et al. 2014). The MISSCARE survey defines missed care as "required patient care that is omitted (either in part or in whole) or delayed" and is a response, Kalisch claims, to "multiple demands and inadequate resources". The MISSCARE survey comprises three components: demographic and workplace data; missed nursing care, which consists of a list of nursing tasks which had been identified; and reasons for missed care. The survey is informed by the Missed Nursing Care Model and uses a four-point Likert scale to measure missed care and reasons for missed care (Kalisch and Williams, 2009). Levels of missed care are measured

using a series of twenty-two established nursing actions while three constructs governing reasons for missed care are captured using sixteen validated items (Phelan report 2016). In a more recent study Castner and Dean-Baar (2014) describe how they used a combination of MISSCARE and Practice and Professional Issues to measure nursing error across diverse in-patient types.

MISSCARE does not include items for evaluation of care, supervision of care or physical comfort (Jones et al, 2016). Neither does MISSCARE include items for surveillance or communication with external agencies for discharge planning. It therefore operates within a bounded view of nursing activities (Jones et al, 2016). The relevance of this tool to primary and community care nursing has not been established.

**2. Perceived Implicit Rationing of Nursing Care (PIRNCA)**

The Perceived Implicit Rationing of Nursing Care (PIRNCA) focuses on the concept of "Unfinished care" (including its use as a performance indicator). Van Fosson (2016) describes its appropriateness as a performance indicator for nursing care systems arguing that it reflects the complexity of the nursing care environment. Jones et al (2015) had previously compared conceptual definitions and frameworks associated with unfinished care and related synonyms (i.e. missed care, implicitly rationed care; and care left undone) and determined that they were comparable or interlinked. The authors concluded:

> "Our synthesis of conceptual frameworks suggests that unfinished care is conceived as a problem of time scarcity that precipitates the process of implicit rationing through clinical priority setting among nursing staff resulting in the outcome of care left undone".

The authors further observed that the most notable difference in the frameworks that they had reviewed related to "the process component of unfinished care and is most accurately portrayed as a difference of terminology rather than substance". They considered that both the theoretical and qualitative evidence that they had reviewed supported the existence of implicit rationing as a form of clinical priority setting". Jones et al also critique the method of obtaining data for unfinished care indicators:

> "The gold standard for estimating unfinished care is arguably direct observation. The accuracy of estimates of unfinished care obtained through self-report compared to this gold standard is unknown and the potential for response bias must be considered."

In a subsequent paper, Jones et al (2016) open up a wide-ranging debate on what to consider when choosing and scoring surveys. Arguing that unfinished nursing care is common in the inpatient setting and is associated with negative patient outcomes, the authors state "this indicator is being assessed with increasing frequency to determine the quality of nursing services. Measurement bias was identified in this comparison of unfinished care surveys". They further caution that "potential sources of bias should be considered when selecting and scoring unfinished nursing care surveys for quality assessment". Jones et al (2016) compare the MISSCARE and PIRNCA survey instruments and describe the components of MISSCARE and PIRNCA components. Notably, PIRNCA is designed for medical surgical in-patient settings. Respondents indicate on a Likert scale circumstances when they were unable to complete tasks in the last 7 days due to lack of resources.

However, as with MISSCARE, the PIRNCA survey can be critiqued for underestimating a number of activities. Both were considered applicable and valid to a community care context as reflected in the low incidence of items designated as "Not Applicable". Both MISSCARE and PIRNCA are based on self-report and require respondents to estimate the frequency of unfinished care from their recollection of past events opening up the potential for recall bias. Moreover, no instructions related to a time frame or considerations of delegated activities are provided. Therefore, metrics obtained by self-report do not reflect the cumulative frequency of patients cared for by multiple nurses. Notwithstanding such limitations both MISSCARE and PIRNCA measures were considered reliable for measuring missed care. However, this conclusion only holds for a medical surgical population and therefore does not carry specific relevance for a primary and community care context. Furthermore, Jones et al (2016) conclude that certain forms of bias prevent the instruments being used interchangeably. They conclude by recommending the use of a 'never' category within the Likert scale. Again, the validity of this approach for primary and community care and for nursing homes has not been established.

### 3. Single-Item, Global, Estimate of Missed Nursing Care measure

Hamilton and colleagues (2017) offer a different approach by proposing a single measure for estimating missed care. They tested a single-item, global, measure using data from a large study of missed care in Australia. The single measure was found to be valid with strong sensitivity and specificity for identifying poor quality care. In their Discussion Hamilton et al (2017) highlight how current measures of missed nursing care (such as the MISSCARE survey) employ inventories of tasks which are rated for the frequency with which each is missed. They contend that such lists have shortcomings when missed care is being explored within the context of research and clinical evaluation. Consequently, they identify a need for measures with less response burden, wider generalizability, and greater sensitivity and specificity for identifying poor quality care and this contextualises their search for a single metric. This tool has not been validated in a primary and community nursing context.

**4. Errors of Care Omission Survey (ECOS)**

The Errors of Care Omission Survey is associated with three papers (Poghosyan et al, 017; Poghosyan et al, 2019a; Poghosyan et al, 2019b). The origins of the Errors of Care Omission Survey dates from 2017 when Poghosyan and colleagues sought to develop a typology of errors of omission from the perspectives of primary care providers. They were also trying to understand what factors within primary care practices lead to or prevent such omissions. The reference to primary care providers, and not specifically to nurses is significant and explains why this study is not included in the empirical studies review. Focusing on "omitted care" Poghosyan et al (2017) present qualitative research on primary care nurse and physician perspectives on errors of omission in the US. Reported errors of omission included: omitting patient teaching, patient follow-up emotional support, addressing mental health needs. Factors contributing to omissions included: time constraints, unplanned patient visits and emergencies and administrative burden. This is the only identified tool to explore missed care within a primary care context.

In other included metrics papers Schubert et al (2008) and McKelvie (2014) explore the concept of "Implicit rationing of care". McKelvie's (2014) commentary accompanies a study on rationing of acute ward care, specifying the data that are required: "intelligent information that tells us how are patients are today, or how staff are feeling about the workload or how the organisation is performing against targets and requirements." The concept of "Care tasks left

undone" is explored first by Sochalski (2004) and, subsequently, by Ausserhofer et al (2014). Neither paper critiques this concept.

### Summary of the Included Empirical Studies

All five empirical studies (eight papers) applied an adapted MISSCARE survey within a generic community or nursing home context, except for the study by Nelson and Flynn (2015) which focused within the specific context of urinary tract infections (UTIs). The Phelan report (2016) summarises the impact of the MISSCARE survey to understand the issue of missed care. The Phelan community survey (2016) included: home nursing care, care management, family support, older people, health promotion, disadvantaged groups, education, provision of other community nursing services, primary care teams and administration. This offers a good starting point for nurse managers when examining missed care in a community context. The Phelan study reported using psychometric evaluation of the survey to improve confidence in its reliability and validity (Willis (2016) also validated the measure). The three remaining studies, set in aged care facilities (Blackman et al, 2015; Henderson et al, 2016, 2017) focused on activities of daily living, assessment and behavioural aspects of care, This narrower remit, nevertheless, reveals aspects of direct, often complex, personal care.

#### *Summary of GRADE-CERQual assessments*

Table 8 presents the GRADE-CERQual assessments for review findings from the empirical studies.

### Summary of the Included Empirical Studies

Included studies were consistent in exploring types of, and reasons for, missed care. The Phelan report (2016) and the Willis report (2016) (and associated studies, Henderson et al, 2016; Henderson et al, 2017) represent an in-depth mixed method examination of community nursing and missed care in Ireland and Australia respectively. These initiatives employed diverse data collection, such as interviews, a Delphi exercise and complex case profiles in order to extend an understanding of organisational and economic contextual issues beyond simply labelling causes of missed care. The Willis report (2016) offers a methodology for staffing to determine percentage of staffing and skills mix. So, although the evidence base is not plentiful, this analysis draws on rich information within these reports. Henderson et al (2017) present an additional study across three Australian states using quantitative and qualitative data applying the frame of types and causes of missed care to residential settings only.

All studies, except Nelson and Flynn (2015), adapt the MISSCARE survey. Henderson et al (2016) apply the same survey data as the Blackman (2015) report (set in one New South Wales region). Nelson and Flynn's (2015) study on missed care and Urinary Tract Infections was the only one not to take a broad approach to missed care. Finally, the Phelan report (2016) together with two papers reporting the same data (2018a; 2018b), reported studies undertaken in community and nursing home settings. Australian studies refer to "residential aged care facilities", perhaps implying that they are equipped to deal with more acute cases (these are not classified as "community services"). A broader metrics question relates to whether MISSCARE items used in a primary or community care context are interpreted in the same way as they would be in an acute care context.

Typically, perspectives were generated from retrospective nursing accounts. Stakeholder, personal care worker and acute nursing perspectives were included (Henderson 2016; Phelan report (2016) and related papers). Willis (2016) incorporated the nursing managerial perspective. Different perspectives may yield contrasting perceptions of missed care. Different organisational cultures emerged, especially in private and not-for-profit care home contexts (Blackman et al, 2015, Willis, 2016). Managerial perspectives also help to identify issues such as communication problems, missed care shift pattern associations as well as offering a broader perspective on staff satisfaction or structural challenges.

Fluctuations in care were addressed to some degree – specifically by requiring recipients to associate missed care with shifts. However, the evidence base did not include any longitudinal studies. Only one study used secondary data (Nelson and Flynn, 2015). Nelson and Flynn (2015) used Nursing Home Compare (NHC) data; a national database containing nursing home level indicators, including patient outcome data, from the Online Survey Certification and Reporting (OSCAR) database and the Minimum Data Set (MDS) (aggregated to nursing home level).

In addition to the included papers reports on missed care were identified from the Tasmania and Victoria regions but these reports were not included due to a paucity of data on community or nursing home settings. For the same reason, a paper by Blackman et al 2015 (the larger study)

was not included (related to Henderson 2016) because the data was not sufficiently distinguishable to satisfy the parameters of this review.

**Discussion**

This is the first systematic review specifically focused on examining the impact of missed care in a primary care, community care and nursing home context. In particular, this review highlights the dearth of evidence base for missed care in primary care, This finding was confirmed in early 2019, following submission of the final report to the Royal College of Nursing, when Poghosyan and colleagues claimed, in the Errors of Care Omission Survey (ECOS), "…"the only known tool to measure critical omissions ("errors") in primary care from the perspectives of primary care providers (PCPs), both physicians and nurse practitioners." This also serves to affirm that the Royal College of Nursing Strategic Alliance had targeted the first review under its new contract at an unequivocally "hot topic". Significantly, given the funder, none of the metrics papers, including the new work from Poghosyan et al (2019a, 2019b) has been developed with the UK health service in mind. We have therefore identified a pressing need to explore the Errors of Care Omission Survey within a UK primary care, community care and nursing home context.

However, the Phelan report (2016) acknowledges that distinctions between primary, community and nursing homes are complex and exist on a continuum. Included studies provide data on community care and nursing home settings. Findings echo an editorial commentary (Bagnsaco & Timmins, 2018) on the Phelan report (2016), highlighting how missed care in community settings impacts particularly on vulnerable groups.

Types and causes of missed care appeared similar across nursing home and community settings. Key types of missed care related to optimising health; ongoing monitoring of patients; relational care. Less significant findings related to particular groups or specific tasks (e.g. care follow-up activity for vulnerable groups and older people, availability of resources and timely administration of medicine). In relation to causes of care missed, reasons emerged surrounding acuity, complexity of cases, volume of care, and organisational factors. Less well-evidenced issues surrounded appropriately skilled nurses, inadequate staffing levels, documentation of

care and communication issues. The majority of metrics, and their underpinning theoretical principles, derive from the MISSCARE survey and its underpinning model (Kalisch, 2009).

Willis and colleagues (2016) observe how interpretation of missed care is making an undesirable shift from organisational or system level explanation to the individual "...a belief that responsibility for quality of care has been shifted from systemic determinants, such as increased resident acuity and funding shortfalls, to the individual nurse or carer" (p.83). Phelan et al (2016) hypothesise implications of missed care to include costs of higher level of care and increased physical and mental support (Lim et al, 2010; Watts et al, 2013; Zeller et al, 2013). Actual data are generally lacking on the consequences of missed care and possible interventions. For instance, Pogosyan et al (2017) characterise possible interventions in a primary care context under the category of 'omission safeguards' but choose not to separate the nurse role and perspective from those of other primary care providers).

**Missed care in primary care contexts:**

Although no studies are explicitly set within primary care, relevant information is identifiable from included studies. The Phelan report (2016) revealed missed care for community nurses within primary care teams. Nurses attended meetings and referred clients to other health care professionals. Participants observed that the ad hoc introduction of Community Registered General Nurses (following the reduction of Public Health Nurses) constituted a potential issue in relation to a lack of planning for skills mix or career pathways. Phelan et al (2016) emphasised the generalist role of the community nurse in Ireland with the lack of a clear distinction in division of work for nurses in hospital discharge for older people and new mothers and children. Finally, one study (Hutchins, 1989), excluded due to the limited relevance of vaccination visits, was cited as an example of missed care in a primary care context (Phelan et al, 2016).

Limitations

This review privileges countries of direct applicability to a UK context. The merits of multi-context and single context syntheses have been debated elsewhere (Booth et al, 2019). Excluded studies from countries such as Switzerland (Zuniga et al, 2015) and Belgium might

have contributed further data. However, confidence in the relevance of included studies to the intended context is strengthened by their relative homogeneity.

Limitations of the evidence base itself are identified within the review and systematic indicators of confidence have been provided. Every effort was made to make the search as comprehensive as possible, utilising supplementary forms of searching. However, where research is less well indexed and, given diffuse terminology, relevant studies may have been missed by the search.

**Summary and Implications**

Implications

Findings from this review indicate that missed care impacts on safety in diverse ways. However, missed care is rarely conceptualised as outcomes directly relating to patient mortality. Empirical findings link missed care to patient outcomes such as UTIs and costs relating to long-term care. However, research has focused on types of missed care and associated causes of missed care (including organisational level factors). Service delivery pressures consistently figure as a contributory factor to missed care and offer the potential for sub-optimal care and suboptimal management of health conditions. Yet outcomes that are causally-linked to missed care remain under-researched. Further empirical studies are needed nationally and internationally to examine missed care in community, primary and nursing home contexts to extend the evidence base beyond the types, causes and outcomes of missed care. These would include outcome evaluations, mixed methods and qualitative data.

Included studies identify an ongoing need to improve secondary datasets and to initiate routine data collection to capture missed care in community, primary and nursing home settings. The use of standardised surveys and metrics, to which the Errors of Care Omission Survey (ECOS), is a notable recent addition, would make studies comparable. Research should also identify specific interventions or measures to combat missed care for older people in the community.

Increasing patient complexity and acuity has emerged to reflect the prevalent demographic of patients within the community. Care that is regularly missed for complex patients holds

potential safety implications, as well as absorbing more care time. Clear definitions of nursing role and care tasks are required to facilitate cross-national comparisons. Relationships between missed care, nurse characteristics (such as level of training) and safety could be explored in relation to different vulnerable groups at risk of missed care.

At the systems level results were limited for the role of environmental or organisational factors as they relate to collaboration with other health or social professions and associated implications for quality or continuity of care, especially in the increasing context of integrated care. Further economic estimates would improve the understanding of the impact of missed care, especially given that implications of missed care could be experienced over the long-term. A review of policy at different practice levels could elucidate the different minimum requirements for nursing care required by nurses, including the level of burden or benefit these pose (e.g. mandated paperwork).

**Conclusion**

This review indicates a paucity of research on missed care in primary, community or nursing home care despite an established research front for missed care in acute settings. The RCN's Strategic Alliance with the University of Sheffield offers an opportunity to build on evidence gaps, including a strengthened understanding of how nurse led care impacts on improved patient safety and outcomes. The RCN have identified an ongoing need to develop, explore and understand interventions that can be used by senior nurses now. Such studies need to employ rigorous designs and credible evaluation methods. Implementation strategies for interventions targeting missed care should also be evaluated and painstakingly documented to enable replicability and exploration of context-sensitivity.

Summary of findings

Review findings for the empirical and metric review components are summarised in Box 1.

Box 1 - Summary of Review Findings

- Evidence indicates that missed care impacts on safety in community and primary care contexts- and these may differ from acute care.

- Quality of evidence is robust but breadth across contexts and populations is limited.
- Types and causes of missed care were common across nursing home and community settings.
- Central findings for types of missed care related to optimising health; ongoing monitoring of patients; relational care.
- Less significant findings related to particular groups or specific tasks (care follow-up activity for vulnerable groups and older people, availability of resources and administration of medicine on time).
- Missed care may hold particularly severe implications for older people and people with complex conditions.
- Missed care could have long term effects relating to cost if it inhibits monitoring, prevention and assessment of patients.
- Missed care experiences may differ across different groups, impacting upon some more than others (e.g. people with mental health challenges).
- Causes of missed care include patient acuity, complexity of cases, volume of care, organisational factors.
- Pressures from the system (financial constraints and policy or management) play a broader role in the missed care phenomenon.
- Missed care causes may be unique to community, primary or nursing home settings (e.g. caseload complexity).
- Less well-evidenced issues surrounded appropriately skilled nurses, inadequate staffing levels, documentation of care and communication issues.
- Gaps in the evidence have been identified, especially primary care contexts.
- Metrics have been adapted to community and nursing home contexts but not in a standardised way.

## Implications for leadership

Findings offer evidence that nurse leaders are becoming increasingly aware of missed care in a primary and community care context, including nursing homes. In the UK the leadership provided by the Royal College of Nursing seeks to demonstrate that the implications of missed care are important for both safety and quality of care. Such professional organisations face a challenging task in presenting the very real consequences of missed care while maintaining public trust in the competencies and professionalisation of the nursing workforce. The evidence that missed care is most likely to occur in contexts where resource and time constraints persist or where nursing staff are having to fill in for other professional or administrative staff is an argument that typically negotiates such a balance. As with acute care,

missed care in a primary or community care setting can hold considerable consequences. Research evidence does not offer any innovative interventions to overcome the impact of missed care without realistic resource expectations. Therefore, one priority for nurse leaders is to identify low-cost quality assurance procedures to address this particular need.

Findings from this systematic review suggest sufficient commonality exists in mechanisms and outcomes between the primary and community care sector and the acute sector to make pursuit of joint creative solutions feasible and desirable. This is true even given a remarkably diverse context within which potential mechanisms might operate. To the phenomenon of missed care nurse leaders do not want to add the burden of missed opportunity.

Source of funding

The project was funded by the Royal College of Nursing (RCN) as part of the Strategic Research Alliance between the RCN and the University of Sheffield. The views expressed are those of the author(s), and not necessarily those of the RCN or University of Sheffield.

Ethical approval

Ethical approval was not required for this paper.

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*Table 1 - Presentation of Search Terms and Concepts.*

| **Database** | **Empirical Studies** | **Metrics** | **No of Hits** |
|---|---|---|---|
| CINAHL | "Missed nursing care" OR "care left undone" OR "unfinished care" OR MISSCARE OR (("Missed care" OR "missed opportunities" OR Missed opportunity OR omission OR omissions) AND (primary care OR primary healthcare OR community OR nursing home OR nursing homes) | "Missed nursing care" OR "care left undone" OR "unfinished care" OR MISSCARE OR (("Missed care" OR "missed opportunities" OR Missed opportunity OR omission OR omissions) AND (metric OR metrics OR measure OR measures OR measuring OR monitor OR monitoring OR evaluation OR evaluate OR evaluating OR tool OR tools OR scale OR scales) | 477 |
| Google Scholar | "Missed nursing care" OR "care left undone" OR "unfinished care" OR MISSCARE OR ("Missed care" AND (Nursing OR nurse OR nurses)) AND (primary care OR primary healthcare OR community OR nursing home OR nursing homes) | | 791 |

*Table 2 - Inclusion and Exclusion Criteria for both review components*

| **Criterion** | **Empirical Studies** | **Metrics Studies** |
|---|---|---|
| Study type: | **Include:** Quantitative or qualitative empirical published primary studies of any design (including reports)<br>[**Exclude:** Non-empirical studies] | Any |
| Geographical limitations | UK, Ireland, USA, Canada, Australia, New Zealand | Any location |
| **Criterion** | **Both Reviews** | |
| Topic | **Include:** Missed care and related concepts | |
| Setting | **Include:** primary care, community care (including nursing care in residential settings)<br>[**Exclude:** Acute care settings; Long-term care not linked to community setting; Mixed care settings where primary/community data is non-identifiable] | |
| Population (Staff) | Include: All levels and specialties of nurses<br>[**Exclude:** Care aides in nursing home settings | |
| Language | **Include:** English<br>[**Exclude:** Materials not translated into English] | |
| Publication type | [**Exclude:** Masters dissertations/theses, systematic review] | |
| Date of publication | **Include:** All dates | |
| | | |

*Table 3 - Key findings from Metrics papers*

| Study ID | Aims | Country of Origin | Concept | Measurement Issues |
|---|---|---|---|---|
| 1) Ausserhofer et al (2014). | To describe the prevalence and patterns of nursing care left undone across European hospitals and explore its associations with nurse-related organisational factors | Switzerland | Nursing care left undone | Links Nursing care left undone to nurse-related organisational factors |
| 2) Castner & Dean-Baar (2014) | To pool items from pre-existing nursing error questionnaires and test psychometric properties of modified subscales from these item combinations. | USA | Missed nursing care | Supports five subscales for MISSCARE: Acute Care Missed Nursing Care, Errors of Commission, Workload, Supplies Problems, and Communication Problems to measure nursing error/antecedents to error in various inpatient unit types with acceptable validity and reliability. Activities of Daily Living (ADL) Omissions subscale is not appropriate for all inpatient unit types. |
| 3) Hamilton et al (2017) | To test a single-item, global, measure using data from a large study of missed care in Australia. | Australia | Missed nursing care | A well-designed single-item measure, as tested, can be useful for measuring missed nursing care. |
| 4) Jones et al (2015) | To evaluate the psychometric properties of a newly adapted instrument for measuring sociological nursing time and describe the experience of sociological time among hospital-employed nurses. | USA | Sociological nursing time | Identified nine reliable components: insufficient time allocation; strict adherence to schedules; increased time awareness; value of quality over speed; fast and unpredictable pace changes; predictable job duties punctuated with unpredictable job demands; expectations for a fast work pace; inconsistent work-hour expectations across departments; and high expectations for punctuality. |
| 5) Jones et al (2016) | To identify potential sources of bias when selecting and scoring | USA | Unfinished nursing care | Potential sources of bias should be considered when selecting and scoring unfinished nursing care surveys for quality assessment. |

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|---|---|---|---|---|
| | measures of unfinished nursing care. | | | |
| 6) Kalisch et al (2009a) [Concept analysis] | To undertake an analysis of the concept of missed nursing care | USA | Missed nursing care | Attributes reported by nurses in acute care settings as contributing to missed nursing care: (1) antecedents that catalyse the need for a decision about priorities; (2) elements of the nursing process and (3) internal perceptions and values of the nurse. |
| 7) Kalisch et al (2009b) [Errors of omission] | To examine what and why nursing care is missed | USA | Errors of omission/ Missed nursing care | Comparison showed consistency across all 3 included hospitals. Associate degree nurses reported more missed care than baccalaureate-prepared and diploma-educated nurses. |
| 8) Kalisch et al (2009c) {Psychometric] | To conduct a psychometric evaluation of a quantitative tool to measure the amount and type of missed nursing care and the reasons for missing care | USA | Missed nursing care | Although further validation of the MISSCARE Survey is needed, current evidence demonstrates that the tool meets stringent psychometric standards. |
| 9) McKelvie (2011) | Commentary on study about rationing of care in acute ward settings. | New Zealand | Rationing of care | Suggests need for "intelligent information" to tell staff "how our patients are today, or how staff are feeling about the workload or how the organisation is performing against targets and requirements" |
| 10) Poghosyan et al (2017) | To develop a typology of errors of omission from the perspectives of primary care providers (PCPs) and understand what factors within practices lead to or prevent these omissions. | USA | Errors of omission | Errors of omission are common in primary care and threaten patient safety. Efforts to eliminate errors should focus on strengthening organizational attributes of practices, improving teamwork and communication, and assigning manageable workload. |
| 11) Poghosyan et al (2019a) | To evaluate psychometric properties of a survey tool measuring omissions in primary care | USA | Errors of omission | Four factors emerged representing domains of omissions in primary care. Poorly performing/ redundant items were removed; remaining 24 items measure Patient Self-Management, Family Engagement, Follow-Up, and Care Integration |

| | | | | |
|---|---|---|---|---|
| | | | | domains of omissions in primary care. ECOS subscales have acceptable internal consistency reliability. Further testing recommended with diverse samples. |
| 12) Poghosyan et al (2019b) | To develop the Errors of Care Omission Survey (ECOS) and present its cognitive and psychometric testing. | USA | Errors of omission | Interviewees agreed that ECOS measures errors of omission and items were clear. Response categories were revised. All items were correlated and subscales had high internal consistency reliability. |
| 13) Schubert et al (2008) | To explore the association between implicit rationing of nursing care and selected patient outcomes in Swiss hospitals, adjusting for major organizational variables, including the quality of the nurse practice environment and the level of nurse staffing. | Switzerland | Rationing of care | Despite low prevalence, implicit rationing of nursing care was a significant predictor for all six patient outcomes. Although adequacy of nursing resources was a significant predictor for most of the patient outcomes in unadjusted models, it was not an independent predictor when adjusted. Low nursing resource adequacy ratings were a significant predictor for 5/6 patient outcomes in unadjusted models, but not in adjusted ones. |
| 14) Sochalski (2004) | To examine the effects of nurse staffing and process of nursing care indicators on assessments of the quality of nursing care. | USA | Nurse staffing | Assessments of nursing quality are associated with both structural (workload) and process of care indicators (unfinished clinical care and patient safety problems), with the relationship strongest between process of care and quality. Explicating the interrelationship between structure and process of care is key to understanding influence of both on quality. |
| 15) Van Fosson et al (2016) | To establish that development of performance indicators to reflect how effectively organizational units transform nursing resources into nursing services should be a high priority | USA | Unfinished nursing care | Unfinished nursing care is congruent with National Quality Forum requirements. The concept warrants further refinement as an important nurse-sensitive performance measure. |

*Table 4 -Identified metrics and associated evaluations*

| **Tool** | **Evaluation** |
|---|---|
| Errors of Care Omission Survey (ECOS) | Psychometric Evaluation (Poghosyan et al, 2019a, 2019b) |
| The Missed Nursing Care Survey (MISSCARE) | Psychometric Evaluation (Kalisch et al, 2006; Kalish et al, 2009c) |
| Perceived Implicit Rationing of Nursing Care (PIRNCA) | Psychometric Evaluation (Jones, 2014) |
| Single-Item, Global, Estimate of Missed Nursing Care measure | Concurrent and convergent validity; sensitivity and specificity (Hamilton et al, 2017) |

*Table 5 - Characteristics of empirical studies*

| Author (Date) | Country (Date of Survey) | No of Responses | Data Collection Instrument | Results | Main Findings |
|---|---|---|---|---|---|
| Blackman et al (2015). | New South Wales, Australia (November 2014) | 4431 nurses and midwives | MISSCARE survey | Most nurses and midwives believed missed care occurred occasionally; more staff believed missed care occurred frequently rather than not at all;<br>• Statistical variations in frequency of missed care seen in nursing care provided and with different shifts; | • Lack of resources primary reason for missed care; exacerbated by unpredictable workloads;<br>• Nurses working in aged care cited inadequate staffing levels as main reason for missed care;<br>• Full or part-time status and nurses' and midwives' qualifications predicted missed care for some shifts; Country of qualification significant factor in missed care;<br>• Perception of adequate staffing levels predicted frequency of missed care, particularly for some shifts;<br>• Health status of staff linked to frequency of missed care during day shifts but not night shifts; Job satisfaction directly influenced frequency of missed care during night shifts;<br>• Level of team satisfaction; Preferred work schedules; Job satisfaction predicted frequency of missed care on all shifts/some shifts; |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | • Poor communications and intensity of nurses' and midwives' workloads were significant factors. |
| Henderson et al (2016). | New South Wales, Australia (November 2014) | 4431 nurses and midwives | Responses to open question in MISSCARE survey: 'Is there anything else you would like to tell us about missed care?' | Reports on 947 qualitative responses. Focuses on causes and impact of missed care. Two major causes of missed care: work intensification and staffing issues. | Participants associated work intensification with patient acuity and cost containment. Staffing issues included: undermining prescribed staffing ratios; skill mix; changing workloads across shifts; and poor support from other staff. Respondents identified insufficient resources (staffing or other resources), to meet patient needs. Missed or delayed nursing care leads nurses to ration care they can provide. |
| Henderson et al (2017) | New South Wales, Victoria and South Australia, Australia (November 2012-July 2015.) | 922 respondents working in residential aged care | MISSCARE survey | Respondents report omission of unplanned care (toileting and answering bells) and rehabilitative care. | Primary reasons for missed care: staffing shortages and difficulties in meeting residents' complex health care needs due to demands arising from increased resident acuity and fewer skilled nurses to meet demand. |
| Nelson & Flynn (2015) | USA (Not stated) | 340 direct-care RNs from 63 nursing homes | New Jersey nurse survey data and data from Nursing Home Compare | Nearly one half of nurses reported missing at least one necessary care activity during their last shift. | Of 12 categories/types of reported missed care activities, 7 significantly correlated with UTI. Regression analysis indicated that failure to administer timely medications and failure to provide |

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| | | | | | adequate patient surveillance explained 40% of variance in residents with UTI. |
| Phelan & McCarthy (2016) | Republic of Ireland. (31 July-25 September 2015). | 283 completed responses from 458 community nurses | MISSCARE survey of experience of missed care within one-week timeframe | Substantial missed care observed for both public health nurses and community registered nurses for health promotion, care management, disadvantaged groups, older people, administration, family support, and for home nursing care, continuous professional development within primary health teams. For public health nurses, missed care impacted on child health/child protection. | Reasons for missed care: inadequate staffing levels, unanticipated rise in client volume and acuity/complexity and a lack of administrative support. Missed care associated with staffing moratorium and other aggravating factors (e.g. increased complexity within client care, early discharge and demographic changes). Fragmented communication between care settings and other disciplines also impacted on missed care. Role boundaries seen as fluid. Community staff did not appear to control legitimate caseloads under their generalist role. Lack of comprehensive leadership in community nursing and career clinical development for community nurses was also identified. |
| Phelan et al (2018a) | Republic of Ireland. (31 July-25 September 2015). | 283 completed responses from 458 community nurses in | MISSCARE cross-sectional survey of experience of missed care within one- | Response rate of 29%. Findings above 70% in several routine care responsibilities. Detected | High prevalence of missed care in community nurses surveyed. Preventative care was most likely to be missed. Highlights serious implications for |

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| | | Republic of Ireland. | week timeframe using demographical information, community nursing roles and reasons for missed care. | higher level of missed care in nurses with less than five years' experience and other variables such as age, those who worked additional unpaid hours, with some regional variations. | a preventative nursing service. Suggests that missed care framework could benefit workforce planning for community nursing services in Ireland and elsewhere. |
| Phelan et al (2018b) | Republic of Ireland. (31 July-25 September 2015). | 283 completed responses from 458 community nurses | MISSCARE cross-sectional survey of experience of missed care within one-week timeframe using health economics and qualitative data. | Findings demonstrate missed care as a significant yet normalised occurrence in community nursing. Missed care appears to be substantial in community nursing in Ireland and may reflect situation in other countries. Not previously fully recognised. | Represents an initial exploration into missed care in community nursing Additional and longitudinal research required to identify how and why missed care impacts on daily practice of community nursing, particularly in context of nursing and midwifery responses to integrated care |
| Willis et al (2016) | Australia (June 2015 – June 2016) | 3,206 participants | MISSCARE survey modified for use with staff in Residential Aged Care | Only 8.2% of respondents indicated staffing was always adequate.<br>All nursing services and personal care interventions missed at least | Inadequate staff numbers most common reason for missed care.<br>Staff shift did not influence frequency or types of missed care.<br>Higher resident numbers associated with more missed care. |

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| | | | | some of the time. | Staff/resident ratios highest in government-owned facilities, higher in private-for-profit; lowest in not-for-profit facilities.<br>Factors adding to time needed to deliver care: administrative load; communication needs of residents/families; inadequate skills mix; size of facility and access to resources; and working with special needs groups (people with dementia, Culturally and Linguistically Diverse background, and people receiving palliative care). |

*Table 6 - Quality Assessments of Cross-sectional Empirical Studies using the Specialist Unit for Review Evidence (SURE) (2018). tool*

| **SURE- Cross-sectional assessment** | Blackman et al 2015 **YES/NO/CAN'T TELL** | Willis et al 2016 **YES/NO/CAN'T TELL** | Phelan et al 2016,2018 **YES/NO/CAN'T TELL** | Henderson et al 2017 **YES/NO/CAN'T TELL** | Nelson & Flynn 2015 **YES/NO/CAN'T TELL** |
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| 1. Is the study design clearly stated? | YES | YES | YES | YES | YES |
| 2. Does the study address a clearly focused question?<br>Consider: Population; Exposure (defined and accurately measured?); Outcomes. | YES | CAN'T TELL | YES | YES | YES |
| 3. Are the setting, locations and relevant dates provided?<br>Consider: recruitment period; exposure; data collection. | YES | YES | YES | YES | YES |
| 4. Were participants fairly selected?<br>Consider: eligibility criteria; sources & selection of participants. | CAN'T TELL | YES | YES | YES | YES |
| 5. Are participant characteristics provided?<br>Consider if: sufficient details; a table is included. | YES | YES | YES | NO | NO |
| 6. Are the measures of exposures & outcomes appropriate?<br>Consider if the methods of assessment are valid & reliable. | YES | YES | YES | YES | YES |
| 7. Is there a description of how the study size was arrived at? | YES | YES | CAN'T TELL | YES | YES |
| 8. Are the statistical methods well described?<br>Consider: How missing data was handled; were potential sources of bias (confounding factors) considered/controlled for. | YES | YES | YES | YES | YES |
| 9. Is information provided on participant eligibility?<br>Consider if following provided: number potentially eligible, confirmed eligible, entered into study | YES | YES | YES | YES | YES |
| 10. Are the results well described?<br>Consider if: effect sizes, confidence intervals/standard deviations provided; the conclusions are the same in the | YES | YES | YES | YES | YES |

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| abstract and the full text. | | | | | |
| 11. Is any sponsorship/conflict of interest reported? | NO | NO | NO | NO | NO |
| 12. Finally...Did the authors identify any limitations and, if so, are they captured above | NO | YES | YES | YES | YES |
| **Summary**<br>Comments relating to avoidable areas of concern with statement indicating if the results are reliable and/or useful. | Results limited and lack detail in respect of nursing home contexts | In-depth study but focus group perspectives not all relevant for this study | Reliable and useful results. MISSCARE survey adapted appropriately. Low response rate unavoidable. missing data handled appropriately. | Two aspects of data reported | Sample criteria clear |

*Table 7 - Quality Assessments of Qualitative Studies using the Critical Appraisal Skills Programme (2018) tool*

| CASP item | Phelan et al 2016; 2018b **YES/NO/CAN'T TELL** | Henderson et al 2016 **YES/NO/CAN'T TELL** |
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| 1. Was there a clear statement of the aims of the research? | YES | YES |
| 2. Is a qualitative methodology appropriate? | YES | YES |
| 3. Was the research design appropriate to address the aims of the research? | YES | YES |
| 4. Was the recruitment strategy appropriate to the aims of the research? | CAN'T TELL | YES |
| 5. Was the data collected in a way that addressed the research issue? | YES | YES |
| 6. Has the relationship between researcher and participants been adequately considered? | CAN'T TELL | YES |
| 7. Have ethical issues been taken into consideration? | YES | YES |
| 8. Was the data analysis sufficiently rigorous? | YES | YES |
| 9. Is there a clear statement of findings? | YES | YES |
| 10. How valuable is the research? | Very High | High |

*Table 8 GRADE- CERQUAL- Assessing the confidence in the qualitative evidence (Lewin et al, 2015)*

| Data supporting review finding | Assessing coherence | Assessing relevance | Assessing adequacy of the data | Assessing methodological limitations | Assessing overall confidence in the finding (high, moderate, low, very low) |
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| Nursing staff miss administrative and patient documentation tasks | Evidence in nursing home context | | Non-patient (administrative tasks) reported as missed e.g. 79% reported updating client notes missed in last week (Phelan, 2016) Aged care compulsory documentation burden (Henderson, 2016) | Some opportunity to specify 'other' items | low |
| Nursing staff miss activities to optimise patient health and wellbeing (activities of daily living, health promotion/visitation, advocacy, re-ablement) | | Community setting under - represented | Missed care identified for all Activities of Daily Living (ADL) for RN and EN. Missed care tasks also include facilitation of engagement, decision about care, dignity, and support to maintain interests. Staff numbers allocated according to staff required to support ADL (Willis, (2016) Indirect factors associated with care (e.g. missed care around prevention and relief of residents' distress and promotion and maintenance of residents' health and maximising residents' life potential (Phelan, 2016) | | moderate |
| Nursing staff miss ongoing monitoring of patient needs (included assessment, reassessment/surveillance/visitation following event or in general) | These can be broad topics | Nursing home and UTI (narrow context) – revealed failures to provide adequate patient surveillance (including important assessments) | Adequate patient surveillance one of two strongest associated factors with missed care (Nelson & Flynn, 2015) Six items categorised as 'Care management' (Phelan, 2016) related to such aspects as client assessments. Assessments also feature in older people and vulnerable groups | Specific types of missed surveillance not captured in design (Nelson & Flynn, 2015) PHN only, and in context of child protection, only care item missed above 50% included support | moderate |

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| | | (Nelson & Flynn, 2015) Failure to maintain at risk register. Different settings covered. (Phelan, 2016) | (For observation monitoring see below). Delphi consensus argued for staffing built around ability to meet residents needs on an ongoing basis. Focus Groups confirmed the complexity of assessments for complex cases (Phelan, 2016). Items contained statements around assessment, e.g. following unplanned event (Phelan, 2016). Educational nursing care to provide home clients with guidance and advice on how to manage care missed 51% of the time in the preceding working week (Phelan, 2016) | provision and visits to families and children as part of a child protection framework (Phelan, 2016) | |
| Nursing staff miss follow-up for vulnerable or disadvantaged groups | Detail on disadvantaged groups (Phelan, 2016) not addressed by other data (excepting older people) | Proportion of nurse caseload responsible for vulnerable groups e.g. asylum seeker, homeless populations (Phelan, 2016) | Follow-up from initial follow-up assessments and screening for risk assessments missed significant proportion of time. Survey data supports finding for disadvantaged groups (care missed for homeless, traveller, migrant and other populations (Phelan, 2016).<br><br>Complex health needs of residents such as dementia and PTSD. Diverse medical and mental health ongoing assessments are presented (Willis, 2016). | Disadvantaged groups included in community care survey - however only small proportion of nurses worked with to vulnerable groups. Methodological limits of complex case examples evaluated by focus groups (Phelan, 2016) | Very low |
| Nursing staff miss older people related care | Follow-up with dementia clients missed within the 35-44 yrs nurse bracket (Phelan, 2016) | Findings from nursing home settings can only. Potentially applies to community settings (not evidence that older people have high frequency of | Chronic conditions care included within contextual factors (Phelan, 2016) Survey also captured data about missed care and older people and within disadvantaged groups together with missed care associated with certain groups (initial assessment, risk | | low |

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| | | missed care in wider contexts) | screening and dementia care)<br>Data from residential homes includes qualitative and survey findings indicating need for extra care (including assessment) following an unexpected event.<br>Data from complex case profiles indicates need for behavioural assistance care, reorienting or extra time for toileting care for certain conditions (Willis, 2016)<br>No data from primary care contexts and older people | | |
| Relational care (can involve emotional or mental health support or day to day communication) | Inferred and through family visitation follow-ups missed (breast feeding support and family visits and support) (Phelan, 2016) | | Cited as discussion point (Nelson & Flynn 2015).<br>Aspects of relational care within domain of behavioural care (Willis, 2016) include: interacting with residents when they have problems with communication, providing residents with activities to improve their mental and physical functioning, providing emotional support for residents and/or their family and friends. Case profile 2 cites example of emotional support needed for a patient with complex needs (Willis, 2016).<br>Other mental health services referral missed (Phelan, 2016) | | low |
| Failure to administer medicine on time | Contradictory evidence on medications tasks (see theme below about clinical tasks not missed)- 'on time' aspect appears important to differentiate | UTI prevention (Nelson & Flynn 2015) | Complexity relates to timeliness and urgency of tasks. Failure to administer medications on time (alongside surveillance) was one of 2 most associated factors with missed care for UTI (Nelson and Flynn 2015).<br>Giving medications within 30 minutes of | Narrow remit and range of indicators (Nelson & Flynn, 2015)<br>Evidence surrounds reasons for missed care not type (Blackman, 2015) | Very low |

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| | | | scheduled time and Ensuring PRN medication acts within 15 minutes missed by RNs and ENs a significant proportion of times in residential care settings (Willis, 2016)<br>Some evidence medicines not available when needed (Blackman, 2015) | | |
| Availability of resources (e.g. functioning equipment) | Supplies of equipment not significant factor (Blackman, 2015)<br>Availability of equipment and poor communication with allied health staff least cited for impact on missed care (Phelan, 2016) | Significant for South Australia region only | Non-functioning equipment reason behind missed care (Blackman, 2015)<br>Cited as factor (Phelan, 2016) | | Very low |
| **Not missed/missed infrequently**<br>Clinical or treatment tasks | UTI tasks cover limited interventions (Nelson & Flynn, 2015)<br>Care missed (particularly in South Australia) nursing home facilities related to response to urgent patient situations (Blackman, 2015) | In community support residential care settings (Phelan, 2016) | Medical procedures (maintaining IV sites, gastric tubes and Suctioning airways/tracheostomy care) missed comparatively less frequently (Willis, 2016).<br>Low levels of missed care reported for clinical nursing care that involved dressings, injections and other clinical interventions. Only 15% respondents indicated this had been missed in their last working week. Basic nursing care involving client personal care more frequently missed but still below 50% threshold (Phelan, 2016) | Surveys provide specific missed care types which are reliable evidence | low |
| **Causes**<br>Increasing acuity of patients | Henderson 2016–some association to comorbidity but not very rich detail to | New South Wales has lowest proportion of nurses/100,000 of population | Acuity identified as factor (Phelan, 2016; Blackman, 2015; Henderson 2016; Willis, 2016) | Limitations of qualitative data collection (Willis, 2016)<br>Data not very rich in relation to | moderate |

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| | establish a pattern | (Blackman, 2015) | Acuity second most cited reason for missed care (Blackman, 2015)<br>Researchers relate increased acuity of residents to changes in governance and private care facilities moving towards higher care clients (Willis, 2016)<br>For aged care nurses, increased acuity related to comorbidities (Henderson, 2016)<br>Acuity one of three aspects to explore association with missed care – Unanticipated rise in client volume and/or client acuity significant factor in missed care for 60% of respondents (Phelan, 2016)<br>Qualitative data highlights service-level pressures and acuity (Henderson, 2017) | aged care specifically (Henderson, 2016) | |
| Increasing complexity of patients and care procedures | What complexity means is not always fully described | Findings from MISSCARE survey show that RNs identify more missed care related to Activities of Daily Living (ADLs) and complex health care than ENs and PCWs (Willis, 2016).<br>Reasons for missed care includes PCW perspectives (Willis, 2016). | Complexity of care was major theme (Phelan, 2016)<br>Qualitative work framed according to difficulty for nurses to meet complex health needs (Henderson, 2017)<br>Complex case profiles highlight complexity of assessments for patients with complex health conditions within complex health needs domain (Willis, 2016)<br>Delphi study reached 98% agreement on 'Thinking of your resident profile, resident care needs have increased in volume and complexity and, over time, continue to increase.' (Willis, 2016)<br>Complexity of cases and related procedures/interventions emphasised (Willis, 2016). | | moderate |

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| Unexpected volume in workload | Fluctuating workflow related to 'short-shifting' (Henderson 2016)<br>'Client volume' (Phelan 2016)<br>Both complexity and acuity included in items (Phelan, 2016) | Specific type of service described by Henderson 2016 that can lend staff from acute services | Workload and workflow (lack of access to allied health professionals exacerbated workload of nurses because staff from aged care were borrowed for acute.<br>Increased workload emerging from acuity and rise of 'sub-acute care' (Henderson 2016)<br>Willis mentions this concept through unexpected events and their impact on missed care in the qualitative data 'RNs, in particular, identified difficulties in meeting workload expectations. RNs reported that nurse to resident ratios are such that, if something unexpected occurred, they would be unable to complete their regular tasks' (Willis, 2016)<br>Unanticipated rise in client volume and/or client acuity was a significant factor in care being missed for 60% of respondents (Phelan, 2016).<br>Workload effects not significantly associated with missed care (Nelson & Flynn, 2015)<br>Increased workload without appropriate support (Phelan, 2016).<br>Too many residents with complex needs second most cited reason for missed care (Willis, 2016) | Nelson and Flynn did not refer to the unexpected element in analysis<br>Willis unexpected event echoed in survey data (though an indication) 'The responses suggested that extra staff were provided in some facilities when unexpected events occurred' p.70 | moderate |
| Appropriately skilled nurses | Statement 'for your area' could be less ambiguous (Willis, 2016) | Fewer skilled nurses given as reason why it is difficult for nurses to meet complex health needs.<br>However, skills mix emerges more strongly in acute care context | Inadequate skills mix third most cited reason for missed care (Willis 2016)<br>Delphi item stated 'A staffing methodology must include the building block of identifying the lowest level in the skills mix of staff who can perform the activities to meet the assessed | Limitations of minimal qualitative data.<br>Delphi evidence based on complex statement of preferred staffing | low |

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| | | (Henderson, 2016)<br>Perspectives of PCWs include this reason for missed care (Willis, 2016) | needs of different resident profiles' (Willis, 2016)<br>Qualitative data identified skill mix as contributor to missed care (Henderson, 2017) | | |
| Inadequate staffing levels | Challenges in finding replacement considered relevant contextual factor (Phelan, 2016)<br>Staff shortages led to rationalising practice (Phelan, 2016) | Perspectives of PCWs include this reason for missed care (Willis, 2016) | Lack of nursing care staff most commonly cited reason for missed care. Impact of maximum number of residents' staff cared for on their last shift significant predicting factor for frequency of missed care (Willis, 2016)<br>Relevant to qualitative aspects of staffing ratios (Henderson 2016)<br>Increased workload without appropriate support (Phelan 2016)<br>Inadequate staffing main item cited by nurses (Blackman 2015) | Qualitative data on rationing | low |
| Organisational/structural issues of service impacting on facilitation of care | | Perspective of stakeholders (Phelan, 2016) | Final higher-level themes in qualitative interviews were: lack of national leadership for discipline development, role changes and need for reform (Phelan, 2016)<br>Qualitative element focused on responsiveness of management towards workplace issues relating to missed care (Willis, 2016). | Limitations of qualitative evidence (small sample of interviewees) (Phelan, 2016; Willis 2016) | Moderate |
| Demands of documentation of care (includes lack of administrative support or increased admin demand) | Inadequate clerical personnel [SA] (includes care assistant workers and admin) (Blackman, 2015) | Australian quality assurance paperwork (specific context) (Henderson, 2016) | Lack of administrative or secretarial support (63%) also poor administrative or office infrastructure (25.2%) (Phelan, 2016)<br>Inadequate clerical personnel cited (Blackman, 2015)<br>Administrative burden identified as issues for funding and quality assurance (Henderson 2016) | | low |

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| | | | Lack of clerical assistive staff significant. South Australian respondents cite difficulties arising from "lack of assistive and clerical staff" (Henderson, 2017) | | |
| Communication tension between nursing team or other staff | . | NSW context (Blackman) & Henderson 2017- This may reflect the sample from South Australia as the survey was primarily completed by RNs who are more likely to undertake administrative tasks, particularly after hours | South Australian respondents cite difficulties arising from poor communication of care that is missed (Henderson, 2017)<br>Most significant reasons behind missed care in NSW and in SA inadequate number of staff and communication tension between nursing staff respectively (Blackman 2015).<br>Communication featured as 'Other issue' (Henderson 2016)<br>Respondents with English as a second language report higher levels of missed care in relation to preventing and minimising resident distress, and with care tasks which maximise the residents' life potential. Both may relate to communication difficulties and differences in cultural nuances (Willis, 2016) - | | Very low |
| **<u>Outcomes</u>**<br>Costly implications for care in the long term | | | Adverse outcomes and associated costs of UTI incidents required additional treatment and monitoring (Nelson & Flynn 2015)<br>Implications for lack of assessment and other missed care included admission of patients in community to long-term care. Longer term cost implications of child health and protection also raised (Phelan 2016) | Longer-term implications cited for discussion (Phelan, 2016) | Very low |