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Keywords Hospital nursing/ Comorbidity/Workload

In this article...

- How hospitalised patients' care needs have changed over recent decades
- The impact of these changes and trends on the nursing workload
- How a study reviewed and analysed English and international evidence

Has patients' acuity and/or dependency on general wards increased?

NIHR

We select NIHR-funded research studies that are most likely to inform and be of interest to health and care professionals, policy makers, patients and the public.

Key points

A study reviewed data about patients' acuity and dependency levels over time

In England and overseas, patients' age, comorbidity and emergency admissions have risen

International studies also showed increased polypharmacy, unplanned readmissions, obesity and patient risk

Many of these patient characteristics increase nurses' workload



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Abstract A review of empirical evidence assessed whether there have been changes in hospitalised medical and surgical patients' levels of acuity and dependency over recent decades, both in England and internationally. This identified that there have been increases in age, comorbidity, and emergency admissions; these are factors known to increase nursing workload.

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Workforce plans should be driven by patients' needs, including their volume, characteristics, complexity and care requirements. A wealth of research has demonstrated that, if staffing numbers do not match demand, there is a greater chance of necessary care being missed and negative consequences to patients' health and wellbeing (Griffiths et al, 2018). A key question is whether the care needs of people in hospital have increased over time, particularly in terms of more underlying conditions, higher acuity or complex care needs; this article discusses the rapid review we conducted to explore this.

Method

We searched Medline for studies published between January 2010 and June 2024, using keywords indicating study type (longitudinal, trend, temporal and cohort) combined with each of the following keywords:

- Acuity;
- Acute;
- Dependency;
- Severity or case*mix;
- Complex*;
- Comorbidity;
- Multimorbidity profile;
- Characteristics;
- Polypharmacy.

We additionally used targeted searches to obtain reports released by organisations that regularly analyse UK trends.

To assess changes over time, we included studies providing empirical data on markers of acuity or dependency at multiple time points. Given the varied patient populations, settings and indicators returned, we prioritised studies with data collected in the UK, supplemented by those with:

- Data collected in high-income countries, such as those in Europe and North America;
- Sample sizes of >10,000 patients covering large geographical areas;
- Substantial data collected within the last 10 years.

Based on theoretical links with increased nursing workload, we also prioritised the following indicators of patients' acuity and/or dependency:

- Increased age;
- Comorbidity, measured via validated tools such as the Charlson Comorbidity Index (CCI);
- Polypharmacy;
- Obesity, type 2 diabetes, frailty, mental health diagnoses and/or dementia.

We undertook a full-text review of 37 pieces of evidence, most of which were

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primary studies; after applying our priority criteria, we selected 10 for final inclusion. Study populations included medical and surgical patients, and some focused specifically on emergency admissions.

Results

Trends in England

Five of the studies reported data from English NHS trusts, collected locally and/or sourced from NHS Digital. They identified increases in patient comorbidity over time: McLean et al (2016) found an increase in average CCI score from nine in 2000-04 to 12 in 2010-14, Steventon et al (2018) found that one in ten patients had five or more health conditions in 2006-07, compared with one in three in 2015-16, and Friebel and Maynou (2022) found a six-fold increase in admissions of patients with more than five comorbidities from 2008 to 2018.

Hospitalised patients are also older than they were previously. Their mean age increased from 79 years in 2000-04 to 80 years in 2010-14 (McLean et al, 2016), and the proportion of patients aged >85 years increased relatively by 59% when comparing 2015-16 with 2006-07 (Steventon et al, 2018).

The number of emergency admissions has also increased (Friebel and Maynou, 2022). Cowling et al (2014) reported an increase to 8,988 per 100,000 population in 2011-12 from 7,675 in 2002-03; they attributed this, in part, to a change in age profile, the availability of primary care services and changes in admission thresholds. Furthermore, large year-on-year increases in proportions of patients with dementia have been observed in emergency admissions (0.2 in 2001-2 versus 0.5 in 2010-11, $p<0.001$) (Cowling et al, 2014).

Length of stay has reduced, particularly among older surgical patients (from 12 days in 2000-04 to nine days in 2010-14) (McLean et al, 2016) and those with five or more conditions (from 16 days in 2006-07 to 11 days in 2015-16) (Steventon et al, 2018). This suggests that hospitalised patients receive more intense care during their admission than before.

International trends

Outside England, five international studies provided additional data and context. The most recent comprehensive study was Naik et al's (2024); conducted in Canada, it reported increased patient complexity between 2002 and 2017 when measured by age, comorbidity, polypharmacy (regular use of five or more medicines), emergency admissions and unplanned readmissions.

Knoedler et al's (2023) study of nine million surgical patients in the US found significant increases in obesity and type 2 diabetes, forecasting that, by 2030, eight out of ten surgical patients will have a body mass index above the healthy threshold.

Leigard et al's (2024) Swedish study from a single, large hospital confirmed increases in age and comorbidity. It also found that patient risk – measured as the proportion of patients with an American Society of Anaesthesiologists classification of >=3, indicating severe systemic disease – increased from 23% in 2006 to 48% in 2021.

Strengths and limitations

This was a rapid, selective review of relevant studies, and our strategies for evidence searching and selection were explicit and reproducible. We did not apply a formal quality-assessment tool; however, the evidence is relatively robust, with large sample sizes and diverse geographical populations. Furthermore, despite the heterogeneity of measures, the direction of results was largely consistent across studies, including those not presented in this article.

Other than a single study exploring dementia, we did not find evidence on the impact of caring for patients with comorbid mental health conditions. Given our approach to study selection, a more focused review around psychiatric comorbidity is recommended.

Additionally, because our most recent studies in England were published in 2022, there is a gap in understanding current national trends. However, the more recent international sources (including one study with forecasting into 2030) provide a useful guide as to how trends are likely to evolve. To understand current trends, up-to-date data from UK sources can be examined, such as those available via NHS England.

Implications for workforce planning

No studies explicitly analysed nursing workload as a result of rising comorbidity, population age or acuity. It is also not clear to what extent the factors identified are reflected in current acuity or dependency measures; however, these factors have been shown to influence functional status, which, in turn, leads to increased nursing workload (Mueller et al, 2010). Specifically, the workload is increased when caring for patients with dementia (Kang and Hur, 2021) and obesity (Huang et al, 2021). Therefore, while there may be a lack of studies that directly measure nursing workload, there is a surplus of data and evidence showing that the patient characteristics and conditions that are known to impact nursing workload have increased over time.

Conclusion

As health services need to respond to changing clinical demands, we conducted a review to assess patients' acuity and dependency over recent decades. Results showed that patients' age, comorbidity and emergency admissions have increased, which is likely to have resulted in an increased workload for nurses. **NT**

● The text of this summary is adapted from Turner L et al (2026) Has the acuity and/or dependency of patients on general wards increased over time? Evidence brief. University of Southampton.

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