



Clinical Question: For hospitalized patients, what and/or is there any evidence for certified nursing assistant ratios/model impact on patient, nursing, and organizational outcomes?

<p>To answer the clinical question, PubMed, Clinical Key, CINAHL, Health Business Elite EBSCO host, ACCESS Medicine, Cochrane Library, OVID, and Google Scholar databases were searched in addition to having a Librarian independently search for articles. There <u>was no evidence found</u> that address specifically on certified assistant ratios/models. Our search results are supported by Butler et al. (2019) a systematic review that concludes the evidence is of insufficient certainty to draw conclusions about effectiveness of other types of interventions, including new nurse-staffing models, introduction of nursing assistive personnel on patient, staff, and cost outcomes. In conclusion, there is no ‘a priori’ knowledge of evidence on ratios/models for certified nursing assistants and impact on patient, nursing, and organizational outcomes. There is a related article that revolved around a certified nursing aid (CNA) assignment acuity tool to determine patient assignments. This is a review on ratios, CNAs to patients in the plural sense. And therefore, excluding evidence on 1:1 nursing assistants to one patient for observation. However, an article on sitter use, Voetelink, et al. (2019) is attached because authors state baseline CNA to patient ratios at a University of Pennsylvania hospital. Another study by Cooke et al. (2021) examines the use of staff variables and thought this was interesting to point, variable positions included combined nursing assistants/health unit coordinators that were employees trained at both as use for high performing units.</p>	
<p>Certified Nurse Aid assignment acuity tool and outcomes</p>	
<p>Maceri, J. et al. (2019). Defining patient acuity for nursing assistants and its correlation to patient and staff satisfaction. <i>MedSurg Nursing</i>, 28(6), pp.368-373.</p>  <p>MaceriMedsurgNursingDefiningPatientAcuit</p>	<p>Quality Improvement Project:</p> <p><u>Use of an <i>I-Score tool</i> (acuity rating tool) to determine patient assignment for NAs and improve efficiency</u> (Thomasos, et al., 2015) versus assigning patient location to NAs. PDSA methodology used to determine improvement outcomes in unit metrics related to call light response time, patient satisfaction data from CAHPS, and post-implementation survey of unit staff i.e., NAs and RNs.</p> <p>Implementation required- education, lead NA role to collect I-Score tool 2 hours prior end of shift.</p> <p>See Figure 1. (Maceri, et al., 2019, p. 370). Individualized Assistive Score for Required Needs) The off-going NA must complete the acuity tool on the assignment within 2 hours of the shift end time and submit to the Lead NA.</p>
<p>Staffing variables and outcomes</p>	

<p>Voetelink, K. et al. (2019). Using six sigma to reduce the utilization of continuous observations (1:) for safety precautions. <i>JONA</i>, 49(9), pp. 418-422.</p> <div data-bbox="280 447 332 510" data-label="Image"> </div> <p>Using Six Sigma to Reduce the Utilization</p>	<p>Data only study:</p> <p>Goal of the study was to reduce 1:1 assignment/ sitter use and provide discontinuation safety 1:1 coverage earlier rather than avoiding assigning 1:1 coverage. Baseline ratios include Charge RN responsible for requesting CNA coverage for safety 1:1s every 4 hours. Authors mention CNA to patient ratios range from 9-15 patients based on patient population. See Table 1 (Voetelink, et al. 2019, p. 419). Using a Six Sigma methodology to reduce variation through defining, measuring, and analyzing the problem to determine appropriate interventions that address the root cause. CNA used a new behavior observation tracking tool during safety 1:1 assignment to document patient behaviors</p>
<p>Cooke at al. (2021). The impact of nursing staff on falls performance health care system: A descriptive study. <i>Journal of Nurse Management</i>, 30, pp. 750-757.</p> <div data-bbox="280 995 332 1058" data-label="Image"> </div> <p>Cooke et al. 2022 The impact of nurse staffir</p>	<p>Descriptive study:</p> <p>The purpose of the study was to examine the relationship between nurse staffing variables and unit fall performance across a large, multi-hospital system. Cooke et al. (2021) identifies staffing variables to determine the association between high and low performing units in relation to unit falls. As such, <u>other staffing variables positions included nursing assistants, advanced health unit coordinators (e.g., administrative clerks), and combined nursing assistant/health unit coordinator positions (employees trained in both positions).</u> Study results indicated that the median number of sitters used were lower for high-performing units (<u>median= 0.10, interquartile range (IQR)=0.30</u>) compared to the lower performing units (<u>median=3.6, IQR=2.2, 4.1</u>), $p<.001$. There were statistically significant relationships between unit fall performances and the staffing variables related to use of sitters. Overall, higher performing units showed lower utilization of sitters and travelers and had fewer overtime hours, than the lower performing units.</p>
<p>Butler et al. (2019). Hospital nurse-staffing models and patient-and staff-related outcomes (Review). <i>Chochrane Library Database of Systematic Reviews</i>, 4. John Wiley & Sons, Ltd. DOI: 10.1002/14651858.CD007019.p ub3.</p>	<p>Systematic Review:</p> <p>Although this review does not include any specifics on CNA models/ratios, the systematic review states outcomes with the use of other nursing staff. In regard to replacing the proportion of registered nurses with licensed practical nurses, licensed vocational nurses, or <u>nursing assistants</u>, <u>some authors suggest there is no or little evidence to suggest that it comprises the quality of patient care</u> (Crossan 2005; Currie 2005; Butler et al., 2019).</p>

 Butler_et_al-2019-Cochrane_Database_of_Systematic_Reviews	<p>Additionally, studies varied in their quality and the reviewers concluded that there was “no evidence to support a positive role of healthcare assistants (HCAs) in patient safety outcomes. Some evidence points to negative effects (Griffith, 2014; Butler et al, 2019).</p> <p>Aims of review was to address the limitations identified in previous related studies through an inclusive systematic review of the current research evidence related to the effect of hospital nurse-staffing models on patient and staff related outcomes.</p>
Contextual Reference Links: National Nursing Assistant Professional Organization websites	https://www.cdph.ca.gov/Programs/CHCQ/LCP/pages/cna.aspx CNAs are certified through the California Department of Public Health; however, there is no discussion or statements on ratios for inpatient units.
	National association of health care assistants (NAHCA) There are no statements on their media page/statement page on staffing ratios for inpatient setting https://www.nahcacna.org/media/press_release/
	‘Denver Health’ lists their RN to patient ratios for each type of unit, <u>and their CNA ratio to patients</u> on the recruitment/careers page, for potential applicants. https://www.denverhealth.org/for-professionals/careers/nurse-recruitment/hospital-based-nursing-units There isn’t evidence/rationale for the ratios stated. However, interesting when it comes to recruitment.

Evidence Search Strategies: A evidence review on the selected clinical question was conducted on March 23-28, 2023. The search was to examine any evidence for certified nursing assistant ratios/model impact on patient, nursing, and organizational outcomes.

Search terms were broad and included (((nurse-patient ratio OR personnel staffing and scheduling) AND ("Nursing assistant OR Certified Nursing Assistant"[Mesh] OR "nurse aids"[Mesh] OR "nursing assistant OR "staffing ratios"[Mesh])) AND ((y_2016-2023[Filter]) AND (humans[Filter]) AND (English[Filter])))” personnel staffing OR scheduling AND scheduling inpatient setting, alone or in combination. To broaden the search through the

electronic databases included PubMed, Clinical Key, CINAHL, Cochrane Libraries, OVID, and additional databases were included: ACCESS Medicine, Health Business Elite EBSCO host, and Google Scholar. Searches were individualized for each database. Additionally, reference links to National Nursing Assistant Professional Organization websites were also included in the search. After evaluation for inclusion and exclusion criteria, and relevance to the question, no articles were found that answer any evidence for certified nursing assistant ratios/model impact on patient, nursing, and organizational outcomes.

Searchable Question
Key Search Terms: Nurse Aids/ nursing assistant aid/nursing assistants, staffing ratios, Nursing auxiliary , allied health personnel staffing and scheduling
Inclusion Criteria: Nursing Assistant, personnel staffing, nurse aids, nursing auxiliary, inpatient setting (med/surg/telemetry/oncology, and FCC)
Exclusion Criteria: Registered Nurse, LVN, Licensed Vocational Nurse, Licensed Practical Nurse (LPNs), ER techs, ambulatory setting, home care , not OR, ER, ICU, long term care i.e., skilled nursing facilities
Limitors (Open year or year ranges, age ranges, and language, etc.): 7 years back 2016-2023; English, Human, US,
Databases: PubMed, Clinical Key, CINAHL, Health Business Elite EBSO host, ACCESS Medicine, Cochrane Library, OVID,
Web Browsers: Google Scholar and Professional Organizations

Clinical Question								
Population and/or Patient(s)	Intervention/Interest Area	Comparison Intervention (Often current practice)	Outcome	Time Period (If Applicable; Optional)				
Certified Nurse Aids/ CNAs/ nursing assisting aid/practical nurse	CNA ratios/models	No ratios/models	Broad: Patient, nursing, and organizational outcomes	Inpatient/acute care hospitalization				
Final Clinical Question: <i>For hospitalized patients, what and/or is there any evidence for certified nursing assistant ratios/model impact on patient, nursing, and organizational outcomes?</i>								
Database	Key Word(s) and/or Controlled Vocabulary Terms [#]		Total References Identified (hits)	Relevant References	Duplicate Articles	Selected for Review	Excluded	Final Total
PubMed Years: 2016-2023	Nurse aids, nursing assistant, allied health, auxiliary health and staffing ratios, personnel staffing and scheduling		657	5	2	5	4	1 *related article
Clinical Key Years: 2016-2023	Nursing assistant and personnel staffing		497	0	0	0	0	0
Clinical Key Years: 2016-2023	Nurse aids and staffing ratios		156	0	1	0	0	0
Clinical Key Years: 2016-2023	Allied health professional staff and ratios		211	0	1	0	0	0

Clinical Key Years: 2016-2023	Unlicensed staff and staff ratios	141	0	1	0	0	0
Clinical Key Years: 2016-2023	CNA staff and staff ratios	161	0	1	0	0	0
Clinical Key Years: 2016-2023	Ward nurse aid staff ratio	281	0	1	0	0	0
CINAHL Years: 2016-2023	Nurse-patient Ratio OR Personnel Staffing and Scheduling) AND (Nursing Assistant OR Certified Nursing Assistant)	23	5	0	2	3	2 *related articles
Health Business Elite EBSCO host Year: 2016-2023	(inpatient OR hospital OR acute care OR med-surg) AND certified nursing assistants	11 *most recent in this database was 2019	1	0	0	0	0
ACCESS Medicine Years: 2016-2023	Nurse-patient ratio AND personnel staffing AND scheduling	1	0	0	0	0	0
Cochrane Library Years: 2016-2023	Nurse-patient ratio AND personnel staffing AND scheduling	1	0	0	0	0	0
OVID Years: 2016-2023	Nurse aids, nursing assistant, allied health, auxiliary health and staffing ratios, personnel staffing and scheduling	9	0	0	0	0	0
Google Scholar	Nursing aid ratios in the hospital setting	17,600	4	0	1	0	1 *related article

Years: 2016-2023		*First 10 pages of search					
Articles Context Reference Links: National Nursing Assistant Professional Organization website	https://www.cdph.ca.gov/Programs/CHCQ/LCP/pages/cna.aspx CNAs are certified through the California Department of Public Health; however there is no discussion or statements on ratios for inpatient units.	0	0	0	0	0	0
	National association of health care assistants (NAHCA) There are no statements on their media page/statement page on staffing ratios for inpatient setting https://www.nahcacna.org/media/press_release/	0	0	0	0	0	0
	‘Denver Health’ lists their RN to patient ratios for each type of unit, <u>and their CNA ratio to patients</u> on the recruitment/careers page, for potential applicants. https://www.denverhealth.org/for-professionals/careers/nurse-recruitment/hospital-based-nursing-units There isn’t evidence/rationale for the ratios stated. However, interesting when it comes to recruitment.	0	0	0	0	0	0

TOTALS						<u>4</u>
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Respectfully submitted,

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