

## Nursing Environment and Clinical Outcomes

The following summaries of recent resources and peer-reviewed articles describe the impact of the nursing environment on the reduction of patient suffering and best practices for improving patient outcomes. Citations are linked to full-text articles [\*] when available. [PG] denotes Press Ganey research.

Study	Objective	Conclusion
<p>[PG] Abrahamson, K., Hass, Z., Morgan, K., Fulton, B., &amp; Ramanujam, R. (2016). <a href="#">The relationship between nurse-reported safety culture and the patient experience</a>. <i>The Journal of Nursing Administration</i>, 46(12), 662-668.</p>	<p>To assess the relationship between nurse-reported safety culture and the patient experience.</p>	<ul style="list-style-type: none"> <li>▪ The Agency for Healthcare Research and Quality's safety culture domains correlate with Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey scores.</li> <li>▪ Overall rating of the hospital is associated with organizational learning—actively doing things to increase safety, improving processes associated with errors, and evaluating effectiveness of change.</li> <li>▪ Nurse communication scores are positively related to nurses' perception of staffing adequacy—having enough staff, working long hours, working in crisis mode, and using agency/temporary staff.</li> <li>▪ Nurses' perception of the level of teamwork within a unit/service line is a significant predictor of patients' likelihood to recommend the hospital.</li> </ul>
<p>[*] Lake, E. T., Hallowell, S. G., Kutney-Lee, A., Hatfield, L. A., Del Guidice, M., Boxer, B. A., ... Aiken, L. H. (2016). <a href="#">Higher quality of care and patient safety associated with better NICU work environments</a>. <i>Journal of Nursing Care Quality</i>, 31(1), 24-32.</p>	<p>To investigate associations among the neonatal intensive care unit work environment, quality of care, safety, and patient outcomes.</p>	<ul style="list-style-type: none"> <li>▪ In better nursing environments compared with the poor environments, nurses were: <ul style="list-style-type: none"> <li>– 66% less likely to report fair or poor quality of care on their unit</li> <li>– 80% less likely to report poor safety</li> <li>– 68% less likely to report frequent central catheter infections</li> <li>– 12% less likely to report frequent infections</li> <li>– 51% less likely to report poor confidence in parents' ability to manage their infant's care after discharge</li> </ul> </li> <li>▪ Environments supportive of professional nursing practice are linked to the well-being of critically ill infants.</li> </ul>
<p>McHugh, M. D., Rochman, M. F., Sloane, D. M., Berg, R. A., Mancini, M. E., Nadkarni, V. M., ... Aiken, L. H. (2016). <a href="#">Better nurse staffing and nurse work environments associated with increased survival of in-hospital cardiac arrest</a></p>	<p>To determine the association between nurse staffing, nurse work environments, and in-hospital cardiac arrest (IHCA) survival.</p>	<ul style="list-style-type: none"> <li>▪ Better work environments and decreased patient-to-nurse ratios on medical-surgical units are associated with higher odds of patient survival after an IHCA.</li> <li>▪ Each additional patient per nurse on medical-surgical units is associated with a 5% lower likelihood of surviving IHCA.</li> <li>▪ Likelihood of IHCA survival decreases by 16% in hospitals with poor work environments.</li> </ul>

Study	Objective	Conclusion
<p><a href="#">patients</a>. <i>Medical Care</i>, 54(1), 74-80.</p>		
<p>Rahn, D. J. (2016). <a href="#">Transformational teamwork: Exploring the impact of nursing teamwork on nurse-sensitive quality indicators</a>. <i>Journal of Nursing Care Quality</i>, 31(3), 262-268.</p>	<p>To investigate the relationship between nursing teamwork and pressure ulcers, falls, and catheter-associated urinary tract infections.</p>	<ul style="list-style-type: none"> <li>As Shared Mental Model (having similar ideas about work goals) scores increase, falls decrease.</li> <li>A strong interpersonal relationship among team members is significantly correlated to improved nursing-sensitive outcomes.</li> </ul>
<p>Silber, J. H., Rosenbaum, P. R., McHugh, M. D., Ludwig, J. M., Smith, H. L., Niknam, B. A., ... Aiken, L. H. (2016). <a href="#">Comparison of the value of nursing work environments in hospitals across different levels of patient risk</a>. <i>JAMA Surgery</i>, 151(6), 527-536.</p>	<p>To test whether hospitals with better nursing work environments have lower costs per patient and to determine patient risk groups associated with the greatest value.</p>	<ul style="list-style-type: none"> <li>Hospitals with better nursing environments and above-average staffing levels are associated with better value—lower mortality with similar costs per patient.</li> <li>A 1% improvement in absolute mortality is associated with a CMS payment increase of about \$1000 (per patient per 30-day episode of care).</li> </ul>
<p>[*] Staggs, V.S., Olds, D.M., Cramer, E. &amp; Shorr, R.I. (2016). <a href="#">Nursing skill mix, nurse staffing level, and physical restraint use in US hospitals: A longitudinal study</a>. <i>Journal of General Internal Medicine</i>.</p>	<p>To examine whether nurse staffing relative to a unit's long-term average is associated with restraint use.</p>	<ul style="list-style-type: none"> <li>There is a strong negative correlation between nursing skill mix and physical restraint use.</li> <li>Odds of fall prevention restraint and of any restraint were respectively 16% and 18% higher for quarters with very low skill mix.</li> </ul>
<p>Wadsworth, B., Felton, F., &amp; Linus, R. (2016). <a href="#">SOARing into strategic planning: Engaging nurses to achieve significant outcomes</a>. <i>Nursing Administration Quarterly</i>, 40(4), 299-306.</p>	<p>To outline the process, tools, and staff engagement strategies used to achieve system-wide success.</p>	<ul style="list-style-type: none"> <li>Crucial components of the program include: <ul style="list-style-type: none"> <li>CNO-led effort to align nursing and organizational strategies</li> <li>Shared decision making structure for staff engagement</li> <li>An Appreciative Inquiry process utilizing strengths, opportunities, aspirations, and results (SOAR)</li> </ul> </li> <li>Hospital-acquired conditions and safety events decreased by as much as 100%.</li> </ul>
<p>Anderson, M., Finch Guthrie, P., Kraft, W.,</p>	<p>To examine the effectiveness of</p>	<ul style="list-style-type: none"> <li>The incidence of unit-acquired pressure ulcers decreased from 15.5% to 2.1% when biweekly</li> </ul>

Study	Objective	Conclusion
<p>Reicks, P., Skay, C., &amp; Beal, A. L. (2015). <a href="#">Universal pressure ulcer prevention bundle with WOC nurse support</a>. <i>Journal of Wound Ostomy Continence Nursing</i>, 42(3), 217-225</p>	<p>biweekly Wound Ostomy Continence (WOC) nursing rounds on pressure ulcer prevention.</p>	<p>WOC nurse rounds were added to a standardized pressure ulcer prevention bundle.</p>
<p><b>[*]</b> Ma, C., McHugh, M. D. &amp; Aiken, L. H. (2015). <a href="#">Organization of hospital nursing and 30-day readmissions in Medicare patients undergoing surgery</a>. <i>Medical Care</i> 53(1), 65–70.</p>	<p>To determine the relationships between hospital nurse work environment, nurse staffing, and nurse education and 30-day readmission rates.</p>	<ul style="list-style-type: none"> <li>▪ Each additional patient per nurse increases the odds of readmission by 3%.</li> <li>▪ A better nurse work environment is associated with lower odds of readmission.</li> <li>▪ Administrative support to nursing practice and nurse-physician relations are main attributes of the work environment that were associated with readmissions.</li> </ul>
<p>Ma, C., &amp; Park, S. H. (2015). <a href="#">Hospital Magnet status, unit work environment, and pressure ulcers</a>. <i>Journal of Nursing Scholarship</i>, 47(6), 565-573.</p>	<p>To identify how organizational nursing factors are associated with hospital-acquired pressure ulcers (HAPU).</p>	<ul style="list-style-type: none"> <li>▪ The unit-level work environment can be more influential than Magnet status in reducing HAPUs.</li> <li>▪ With a one-unit increase of the PES-NWI score, units had 29% lower odds of HAPUs.</li> <li>▪ Magnet hospital units had 21% lower odds of HAPUs than non-Magnet hospital units.</li> </ul>
<p><b>[*PG]</b> Press Ganey. (2015). <a href="#">The influence of nurse work environment on patient, payment and nurse outcomes in acute care settings</a>. South Bend, IN: Author.</p>	<p>To explore the relationships between the RN Work Environment and Nurse Staffing on nursing and patient outcomes.</p>	<ul style="list-style-type: none"> <li>▪ All Hospital Consumer Assessment of Healthcare Providers and Systems and Press Ganey patient experience domain scores are correlated with better nursing work environments.</li> <li>▪ The work environment is more strongly correlated to fewer falls and pressure ulcers than staffing.</li> <li>▪ Nursing perceptions of the quality of care are higher in hospitals with better work environments, even where staffing is below average.</li> <li>▪ Patient overall ratings are significantly higher in hospitals with better work environments, even where staffing is below average.</li> <li>▪ Mean readmission scores are lower in hospitals with the most favorable work environment.</li> <li>▪ Mean VBP scores correlate to high nursing work environment composite scores.</li> <li>▪ Nurses job satisfaction and intent to stay increase as work environment scores increase regardless of the staffing composite.</li> </ul>
<p>Stein, S. M., Day, M., Karia, R., Hutzler, L., &amp; Bosco, J. A., III (2015).</p>	<p>To examine the relationship between complication rates and</p>	<ul style="list-style-type: none"> <li>▪ Several complication rates were higher with lower overall ratings scores: <ul style="list-style-type: none"> <li>– Serious pressure ulcers</li> </ul> </li> </ul>

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<p><a href="#">Patients' perceptions of care are associated with quality of hospital care: A survey of 4605 hospitals.</a> <i>American Journal of Medical Quality</i>, 30(4), 382-388.</p>	<p>patient perceptions of care.</p>	<ul style="list-style-type: none"> <li>- Venous catheter-associated infections</li> <li>- Venous thromboembolism</li> <li>- Manifestations of poor glycemic control</li> <li>- Postoperative deaths from serious treatable complications</li> <li>- Postoperative wound dehiscence</li> </ul>
<p>Adams, K. L., &amp; Iseler, J. I. (2014). <a href="#">The relationship of bedside nurses' emotional intelligence with quality of care.</a> <i>Journal of Nursing Care Quality</i>, 29(2), 174-181.</p>	<p>To determine if emotional intelligence of bedside nurses is related to the quality of care delivered to hospital patients.</p>	<ul style="list-style-type: none"> <li>▪ Nursing staff emotional intelligence is correlated with clinical quality—specifically, the number of clostridium difficile and MRSA infections, patient falls with injury, and pressure ulcer screenings.</li> </ul>
<p>[*] Bodenheimer, T., &amp; Sinsky, C. (2014). <a href="#">From Triple to Quadruple Aim: Care of the patient requires care of the provider.</a> <i>Annals of Family Medicine</i>, 12(6), 573-576</p>	<p>To recommend that the Triple Aim be expanded to a Quadruple Aim, adding the goal of improving the work life of health care providers, including clinicians and staff.</p>	<ul style="list-style-type: none"> <li>▪ The Triple Aim—improving the health of populations, enhancing the patient experience of care, and reducing the per capita cost of health care—is dependent upon improving the work life of health care clinicians and staff.</li> <li>▪ For primary care physicians, practical steps to address the fourth aim include: <ul style="list-style-type: none"> <li>- Implement team documentation</li> <li>- Use pre-visit planning and pre-appointment laboratory testing</li> <li>- Allow nurses responsibility for preventive care and chronic care health coaching under physician-written standing orders</li> <li>- Standardize workflows for prescription refills</li> <li>- Co-locate teams so that physicians work in the same space as their team members</li> <li>- Ensure that staff who assume new responsibilities are well trained and reengineer unnecessary work out of the practice.</li> </ul> </li> </ul>
<p>Choi, J., &amp; Staggs, V. S. (2014). <a href="#">Comparability of nurse staffing measures in examining the relationship between RN staffing and unit-acquired pressure ulcers: a unit-level descriptive, correlational study.</a> <i>International Journal of Nursing Studies</i>, 51(10), 1344- 1352.</p>	<p>To examine correlations among six nurse staffing measures and unit acquired pressure ulcers (UAPUs).</p>	<ul style="list-style-type: none"> <li>▪ RN-reported number of assigned patient was highly correlated with RNHPPD and RN skill mix.</li> <li>▪ RN-perceived staffing adequacy was the best predictor of UAPU occurrences.</li> <li>▪ Among the six staffing variables (total nursing HPPD, RN HPPD, non-RN HPPD, RN skill mix, RN-reported number of assigned patients, and RN-perceived staffing adequacy), only RN skill mix and RN-perceived staffing adequacy were significant predictors of UAPU occurrences.</li> </ul>

Study	Objective	Conclusion
<p><b>[PG]</b> Dempsey, C., Reilly, B., &amp; Buhlman, N. (2014). <a href="#">Improving the patient experience: Real-world strategies for engaging nurses.</a> <i>Journal of Nursing Administration, 44</i>(3), 142-151.</p>	<p>To discuss findings associated with nursing care practices, and the nursing environment that have a positive effect on the patient experience.</p>	<ul style="list-style-type: none"> <li>▪ Nursing interventions shown to improve the nursing environment and the patient experience include:               <ul style="list-style-type: none"> <li>– Purposeful hourly patient rounds: Decreases call light use and falls, and increases overall patient satisfaction.</li> <li>– Bedside shift reports: Improves continuity of care, patient involvement, use of structured handover tools, and active patient checks.</li> <li>– Leadership rounds: Improves leadership engagement.</li> <li>– Formal nurse manager training: Improves leadership and mentoring capabilities, staff retention, and management-staff relations.</li> </ul> </li> </ul>
<p>Morehead, D., &amp; Blain, B. (2014). <a href="#">Driving hospital-acquired pressure ulcers to zero.</a> <i>Critical Care Nursing Clinics of North America, 26</i>(4), 559-567.</p>	<p>To describe a successful process improvement effort that decreased the incidence of hospital-acquired pressure ulcers.</p>	<ul style="list-style-type: none"> <li>▪ ICU-acquired pressure ulcer rate dropped from 30% to 0%.</li> <li>▪ Process characteristics associated with improvement include:               <ul style="list-style-type: none"> <li>– Educate nurses about accurately identifying pressure ulcers to increase staff nurse awareness of their value in avoiding pressure ulcer development.</li> <li>– Have staff nurses lead the initiative supported by the Chief Nursing Officer.</li> <li>– Turn patients during bedside report to eliminate the most common cause of delay in repositioning.</li> <li>– Build skin/wound assessment into vital sign flow sheets that are easily retrieved and viewable.</li> </ul> </li> </ul>
<p><b>[*]</b> Reimer, N., &amp; Herbener, L. (2014). <a href="#">Round and round we go: Rounding strategies to impact exemplary professional practice.</a> <i>Clinical Journal of Oncology Nursing, 18</i>(6), 654-660.</p>	<p>To examine how diverse rounding methods affect patient outcomes and patient and staff satisfaction.</p>	<ul style="list-style-type: none"> <li>▪ Apply multiple rounding strategies to realize measurable improvements in clinical, patient experience, and culture outcomes:               <ul style="list-style-type: none"> <li>– Hourly patient rounds by nursing staff</li> <li>– Daily interdisciplinary patient rounds</li> <li>– Daily teaching rounds by a unit based educator</li> <li>– Daily unit manager patient rounds</li> <li>– Daily unit manager staff rounds</li> <li>– Quarterly Chief Nursing Officer nursing staff rounds</li> <li>– Senior executive rounds on one unit per month</li> </ul> </li> <li>▪ Set a schedule to avoid overlapping rounds.</li> <li>▪ Recap previous discussions and provide opportunities for all participants, including the patient and family, to contribute information and ask questions.</li> <li>▪ Script three to five questions for each rounding type.</li> </ul>

Study	Objective	Conclusion
<p>Bakker, D., &amp; Keithley, J. K. (2013). <a href="#">Implementing a centralized nurse-sensitive indicator management initiative in a community hospital</a>. <i>Journal of Nursing Care Quality</i>, 28(3), 241-249.</p>	<p>To describe a centralized data management initiative that facilitates analysis and response to Nursing Sensitive Indicators (NSIs).</p>	<ul style="list-style-type: none"> <li>▪ A 100% increase in performance improvement activity and a 4% increase in NSI performance were realized.</li> <li>▪ Initial data analysis is necessary to identify gaps in collection and performance based on national measures and benchmarks.</li> <li>▪ Create a nursing data council comprised of nursing, quality and IT leadership accountable for the following: <ul style="list-style-type: none"> <li>– Creating unit level NSI reports</li> <li>– Allocating resource</li> <li>– Mentoring nurse managers and staff in data analysis, interpretation, and response</li> <li>– Holding nurse managers accountable for reacting to the data on a pre-set timeframe.</li> </ul> </li> </ul>
<p>Bergquist-Beringer, S., Dong, L., He, J., &amp; Dunton, N. (2013). <a href="#">Pressure ulcers and prevention among acute care hospitals in the United States</a>. <i>Joint Commission Journal on Quality and Patient Safety</i>, 39(9), 404-414.</p>	<p>To assess the effect of pressure ulcer prevention efforts on the incidence of hospital-acquired pressure ulcers (HAPU).</p>	<ul style="list-style-type: none"> <li>▪ Patients who received a pressure ulcer risk assessment on admission were less likely to develop a HAPU.</li> <li>▪ Variables associated with lower HAPU rates: <ul style="list-style-type: none"> <li>– Routine repositioning</li> <li>– Magnet/Magnet-appliant</li> </ul> </li> <li>▪ Variables associated with higher HAPU rates: <ul style="list-style-type: none"> <li>– In need of nutritional support</li> <li>– Moisture management</li> <li>– Larger hospital size</li> <li>– Academic medical center status</li> </ul> </li> </ul>
<p>Choi, J., Bergquist-Beringer, S., &amp; Staggs, V. S. (2013). <a href="#">Linking RN workgroup satisfaction to pressure ulcers among older adults on acute care hospital units</a>. <i>Research in Nursing and Health</i>, 36(2), 181-190.</p>	<p>To examine the relationship between RN workgroup job satisfaction and hospital-acquired pressure ulcers (HAPU).</p>	<ul style="list-style-type: none"> <li>▪ Higher nurse job satisfaction is related to lower HAPU rates among older patients in acute care hospitals.</li> <li>▪ Factors related to lower HAPU incidence: <ul style="list-style-type: none"> <li>– Odds decrease 2-3% for each 1-unit increase in RN workgroup job satisfaction in critical care, medical, and rehabilitation units.</li> <li>– Odds decrease 3% for each 1-year increase in RN unit Choi, .</li> <li>– A 19% lower incidence in Magnet hospitals versus non-Magnet.</li> </ul> </li> </ul>
<p>Choi, J., &amp; Boyle, D.K. (2013). <a href="#">RN workgroup job satisfaction and patient falls in acute care hospital units</a>. <i>The Journal of Nursing Administration</i>, 43(11), 586-591.</p>	<p>To examine the relationship between nursing environment and patient falls.</p>	<ul style="list-style-type: none"> <li>▪ High nursing job satisfaction is linked to lower fall rate and higher patient satisfaction.</li> <li>▪ Fall rates decrease with: <ul style="list-style-type: none"> <li>– Experienced RNs on staff</li> <li>– Longer RN tenure on a unit</li> </ul> </li> <li>▪ For every 1-point increase in nursing hours per patient day, the fall rate dropped by 0.3%.</li> </ul>

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<p>[*] Debono, D. S., Greenfield, D., Travaglia, J. F., Long, J. C., Black, D., Johnson, J., &amp; Braithwaite, J. (2013). <a href="#">Nurses' workarounds in acute healthcare settings: A scoping review</a>. <i>BMC Health Services Research</i>, 11(13), 175.</p>	<p>To assess peer-reviewed empirical evidence on the use and perceived impact of nurses' workarounds in acute care settings.</p>	<ul style="list-style-type: none"> <li>▪ Workaround behaviors consume organizational resources and negatively affect safety environments.</li> <li>▪ Workarounds help identify areas for improvement.</li> <li>▪ Factors that lead to workarounds include:               <ul style="list-style-type: none"> <li>– Technology in conflict with policies and workflow</li> <li>– Misunderstanding policies or responsibilities</li> <li>– Inadequate resources</li> <li>– A cultural expectation for multitasking</li> <li>– Poor leadership support and little staff nurse involvement in decision making</li> <li>– High stress and low morale</li> </ul> </li> </ul>
<p>[*] Kelly, D., Kutney-Lee, A., Lake, E. T., &amp; Aiken, L. H. (2013). <a href="#">The critical care work environment and nurse-reported health care-associated infections</a>. <i>American Journal of Critical Care</i>, 22(6), 482-488.</p>	<p>To determine correlations between critical care nurse work environment and nurse-reported health care-associated infections.</p>	<ul style="list-style-type: none"> <li>▪ A better work environment is defined as scoring above the 75th percentile on the Practice Environment Survey scales for staffing and resource adequacy, nurse participation in hospital affairs and quality, collegial nurse-physician relations, nurse manager ability, and leadership support.</li> <li>▪ Health care-associated infections are 36% to 41% less likely in better critical care work environments.</li> </ul>
<p>[*] McHugh, M. D., Kelly, L. A., Smith, H. L., Wu, E. S., Vanak, J. M., &amp; Aiken, L. H. (2013). <a href="#">Lower mortality in Magnet hospitals</a>. <i>Medical Care</i>, 51(5), 382-388.</p>	<p>To determine whether Magnet hospitals have lower risk-adjusted mortality and failure-to-rescue compared with non-Magnet hospitals, and to determine the most likely explanations.</p>	<ul style="list-style-type: none"> <li>▪ Hospitals recognized for nursing excellence (i.e., Magnet hospitals) have significantly better work environments.</li> <li>▪ Magnet-recognized hospitals have lower surgical mortality and failure-to-rescue than non-Magnet-recognized organizations.</li> <li>▪ Better outcomes at Magnet-recognized hospitals could be attributed in large part to investments in highly qualified and educated nurses, and practice environments supportive of high-quality nursing care.</li> </ul>
<p>Tinkham, M. R. (2013). <a href="#">The road to Magnet: Encouraging transformational leadership</a>. <i>AORN Journal</i>, 98(2), 186-188.</p>	<p>To identify activities and characteristics of high-performing nursing environments.</p>	<ul style="list-style-type: none"> <li>▪ High performers in quality and safety shared the following leadership characteristics:               <ul style="list-style-type: none"> <li>– Shared governance model</li> <li>– Leadership development strategy that includes mentoring</li> <li>– Highly visible nursing leadership</li> <li>– Human resources support of nursing managers</li> <li>– Leadership succession planning</li> </ul> </li> </ul>
<p>Warshawsky, N., Rayens, M. K., Stefaniak, K., &amp; Rahman, R. (2013). <a href="#">The effect of nurse manager</a></p>	<p>To determine whether unit characteristics, including nurse manager turnover,</p>	<ul style="list-style-type: none"> <li>▪ Patients in medical/surgical units experienced more falls than in intensive care units.</li> <li>▪ Patients in ICUs experience more pressure ulcers.</li> </ul>

Study	Objective	Conclusion
<p><a href="#">turnover on patient fall and pressure ulcer rates.</a> <i>Journal of Nursing Management</i>, 21(5), 725-732.</p>	<p>have an effect on patient falls or pressure ulcers.</p>	<ul style="list-style-type: none"> <li>▪ Nurse Manager turnover is associated with more pressure injury events on the unit.</li> </ul>
<p>[*] Aiken, L. H., Seremeus, W., Van den Heede, K., Sloane, D. M., Busse, R., McKee, M., . . . Kutney-Lee, A. (2012). <a href="#">Patient safety, satisfaction, and quality of hospital care: Cross sectional surveys of nurses and patients in 12 countries in Europe and the United States.</a> <i>British Medical Journal</i>, 344, e1717.</p>	<p>To determine whether good nurse staffing and work environments affect patient care and nurse workforce stability. (Note: Study included hospitals in Europe and the U.S.; there were similar findings across all hospitals.)</p>	<ul style="list-style-type: none"> <li>▪ Improved work environments and reduced ratios of patients to nurses are associated with increased care quality and patient satisfaction.</li> <li>▪ Patients in hospitals with better work environments are more likely to rate their hospital highly and recommend their hospitals.</li> <li>▪ Improvement of hospital work environments might be a relatively low-cost strategy to improve safety and quality in hospital care and to increase patient satisfaction.</li> </ul>
<p>[*] Cimiotti, J. P., Aiken, L. H., Sloane, D. M., &amp; Wu, E. S. (2012). <a href="#">Nurse staffing, burnout, and health care associated infection.</a> <i>American Journal of Infection Control</i>, 40(6), 486-490.</p>	<p>To examine the effect of nursing environment characteristics on health care-associated infections.</p>	<ul style="list-style-type: none"> <li>▪ Patient-to-nurse ratio and nurse burnout both relate to urinary tract (UTI) and surgical site infections (SSI). <ul style="list-style-type: none"> <li>– One more UTI and two more SSIs per 1000 patients for every 10% increase in nurse burnout rate</li> </ul> </li> <li>▪ More than one-third of all nurses report high levels of job-related burnout.</li> <li>▪ Significant cost savings is associated with reduced burnout.</li> </ul>
<p>He, J., Dunton, N., &amp; Staggs, V. (2012). <a href="#">Unit-level time trends in inpatient fall rates of US hospitals.</a> <i>Medical Care</i>, 50(9), 801-807.</p>	<p>To examine trends in the rate of total inpatient falls.</p>	<ul style="list-style-type: none"> <li>▪ Factors correlating to lower fall rates include: <ul style="list-style-type: none"> <li>– A higher percentage of register nurses</li> <li>– Higher total nursing hours per patient day</li> <li>– 300 or more beds</li> </ul> </li> </ul>
<p>Olrich, T., Kalman, M., &amp; Nigolian, C. (2012). <a href="#">Hourly rounding: A replication study.</a> <i>MEDSURG Nursing</i>, 21(1), 23-26, 36.</p>	<p>To determine the effect of hourly rounding on fall rates, call light usage, and patient satisfaction in an inpatient medical-surgical patient population.</p>	<ul style="list-style-type: none"> <li>▪ Hourly rounding by nursing personnel positively affects fall rates, call-light usage, and patient satisfaction.</li> <li>▪ Enlist staff champions to ensure consistency in nurses' hourly rounding behaviors.</li> <li>▪ Distribute data to staff as positive reinforcement of rounding outcomes.</li> </ul>



Study	Objective	Conclusion
<p>Potter, C., Dunton, N., &amp; Staggs, V. (2012). Nursing characteristics affect healthcare-associated infections. <i>Clinical Connections: Newsletter for the Department of Nursing</i>. Kansas University School of Medicine.</p>	<p>To assess nursing characteristics' effect on hospital-acquired infection rates.</p>	<ul style="list-style-type: none"> <li>Units with Critical Care certified RNs (CCRN) had lower Catheter-Associated UTI rates.</li> <li>Units with Cardiac Surgery Certified RNs had lower Central Line Associated Blood Stream Infection (CLABSI) rates.</li> <li>Higher RN hours per patient day was associated with lower CAUTI and CLABSI rates.</li> <li>High use of agency RNs was associated with higher Ventilator Associated Pneumonia (VAP) rates.</li> <li>CAUTI, CLABSI, and VAP rates were higher in academic medical centers than in teaching or non-teaching facilities.</li> </ul>
<p>Sherrod, B. C., Brown, R., Vroom, J., &amp; Sullivan, D. T. (2012). <a href="#">Round with purpose</a>. <i>Nursing Management</i>, 43(1), 32-38.</p>	<p>To evaluate the effectiveness of a purposeful rounding program for decreasing falls and HAPUs, and increasing patient satisfaction with nursing services.</p>	<ul style="list-style-type: none"> <li>Falls with injury was reduced after implementing hourly nursing rounds.</li> <li>Post-implementation patient satisfaction scores had significant improvement with all questions above the 75th percentile.</li> </ul>
<p>Staggs, V. S., Knight, J. E., &amp; Dunton, N. (2012). <a href="#">Understanding unassisted falls: Effects of nurse staffing level and nursing staff characteristics</a>. <i>Journal of Nursing Care Quality</i>, 27(3), 194-199.</p>	<p>To explore hospital and nursing-unit characteristics as predictors of the unassisted fall rate.</p>	<ul style="list-style-type: none"> <li>There is a positive association between fall rates and low staffing.</li> <li>There is a negative association between fall rates and average skill mix and RN tenure on the unit.</li> </ul>
<p><b>[PG]</b> Wolosin, R., Ayala, L., &amp; Fulton, B. R. (2012). <a href="#">Nursing care, inpatient satisfaction, and value-based purchasing: Vital connections</a>. <i>Journal of Nursing Administration</i> 42 (6), 321–5.</p>	<p>To investigate how domains of patient satisfaction in hospitals predict Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) global rating scores.</p>	<ul style="list-style-type: none"> <li>Higher scores on nurse-related questions are associated with increased odds of receiving the most positive HCAHPS responses.</li> <li>Each one-point increase in the nursing domain score increased the odds of achieving an HCAHPS top-box score by 4.9%.</li> </ul>
<p><b>[*]</b> Aiken, L. H., Cimiotti, J. P., Sloane, D. M., Smith, H. L., Flynn, L., &amp; Neff, D. F. (2011). <a href="#">Effects of nurse staffing and nurse education on patient</a></p>	<p>To determine the effect of nurse staffing, education, and work environment on mortality and failure to rescue rates.</p>	<ul style="list-style-type: none"> <li>Good nurse work environments are defined as those with: <ul style="list-style-type: none"> <li>Strong doctor-nurse relationships</li> <li>Nurses involved in hospital affairs</li> <li>Responsive management</li> <li>Continuing education opportunities</li> </ul> </li> </ul>

Study	Objective	Conclusion
<p><a href="#">deaths in hospitals with different nurse work environments</a>. <i>Medical Care</i>, 49(12), 1047-1053.</p>		<ul style="list-style-type: none"> <li>▪ Decreasing patient load by one patient per nurse affected mortality and failure to rescue rates differently based on the nursing environment:               <ul style="list-style-type: none"> <li>– Best environments: 9% decrease in mortality, 10% decrease in failure to rescue</li> <li>– Average environments: 4% decrease in each</li> <li>– Poor environments: No influence on mortality or failure to rescue</li> </ul> </li> <li>▪ A 10% increase in the percentage of BSNs on staff reduced mortality and failure to rescue rates by 4% regardless of other environmental factors.</li> </ul>
<p>Hinson, T. D., &amp; Spatz, D. L. (2011). <a href="#">Improving nurse retention in a large tertiary acute-care hospital</a>. <i>The Journal of Nursing Administration</i>, 41(3), 103-108.</p>	<p>To assess the effect of a 5-pronged retention strategy on nursing job satisfaction and turnover.</p>	<ul style="list-style-type: none"> <li>▪ Five concepts applied together resulted in a 91% reduction in voluntary nurse turnover, yielding savings of \$655,949:               <ul style="list-style-type: none"> <li>– New nurse orientation breakfast with nursing leaders and staff, and a peer-mentoring program</li> <li>– Weekly leadership rounds</li> <li>– Unit celebrations for life events, individual accomplishments, and team wins</li> <li>– Routine public recognition of superior care or teamwork</li> <li>– Managers empowering staff to create interventions to overcome work challenges</li> </ul> </li> <li>▪ Adequate nurse staffing contributed to better patient outcomes.</li> </ul>
<p>Mahmood, A., Chaudhury, H., &amp; Valente, M. (2011). <a href="#">Nurses' perceptions of how physical environment affects medication errors in acute care settings</a>. <i>Applied Nursing Research</i>, 24(4), 229-237.</p>	<p>To examine how the nursing staff perceive the role of the physical environment on the occurrence of medication errors.</p>	<ul style="list-style-type: none"> <li>▪ Factors within the physical environment perceived to lead to medication errors include lack of privacy in the nurses' work area, insufficient space in the medication room, inappropriate layout in the nursing unit, and insufficient space for documenting medication administration.</li> <li>▪ Missed doses is correlated to poor lighting, high noise levels, poorly organized supplies, and missing or unreadable medication labels.</li> <li>▪ Poor training, stress, overwork, noise levels, a high number of patients per nurse, poor teamwork, and poor handwriting are perceived to contribute to medication errors.</li> </ul>
<p>[*] Needleman, J., Buerhaus, P., Pankratz, V. S., Leibson, C. L., Stevens, S. R., &amp; Harris, M. (2011). <a href="#">Nurse staffing and inpatient hospital mortality</a>. <i>The New</i></p>	<p>To study the relationship between staffing and mortality.</p>	<ul style="list-style-type: none"> <li>▪ There is an association between increased mortality and high exposure to nursing shifts with eight or more hours below staffing target.</li> <li>▪ There is an association between high patient turnover and mortality rate.</li> </ul>

Study	Objective	Conclusion
<p><i>England Journal of Medicine</i>, 346(11), 1037-1045.</p>		
<p>Tzeng, H. M., Hu, H. M., &amp; Yin, C. Y. (2011). <a href="#">The relationship of the hospital-acquired injurious fall rates with the quality profile of a hospital's care delivery and nursing staff patterns</a>. <i>Nursing Economics</i>, 29(6), 299-307.</p>	<p>To determine contributions of inpatient satisfaction measures and nurse staffing on fall rates.</p>	<ul style="list-style-type: none"> <li>▪ The higher the inpatient satisfaction levels with the quietness of hospital environment, the lower the injurious fall rates.</li> <li>▪ Responsiveness to call lights was identified as a factor related to fall-prevention efforts.</li> </ul>
<p>Vogus, T. J., &amp; Sutcliffe, K. M. (2011). <a href="#">The impact of safety organizing, trusted leadership, and care pathways on reported medication errors in hospital Nursing units</a>. <i>Journal of Nursing Administration</i>, 41(7-8 Suppl), 25-30.</p>	<p>To examine the effect of bundling data management with trust in management and the use of care pathways on the patient safety environment.</p>	<ul style="list-style-type: none"> <li>▪ Organizational components associated with reductions in the number of reported medication errors, patient falls, and RN back injuries on hospital nursing units included:               <ul style="list-style-type: none"> <li>– Standardized process for collecting, analyzing, and disseminating information from errors and patient safety incidences.</li> <li>– Extensive use of care pathways in hospital nursing units resulted in three fewer reported medication errors per nursing unit over a six-month period.</li> <li>– A safe environment for RNs to report and discuss errors resulted in one fewer reported medication error per [nursing] unit.</li> <li>– Management support for RN generated ideas for process improvement.</li> </ul> </li> </ul>
<p>Bergquist-Beringer, S., Derganc, K., &amp; Dunton, N. (2009). <a href="#">Embracing the use of skin care champions</a>. <i>Nursing Management</i>, 40(12), 19-24.</p>	<p>To evaluate the relationship between unit-based skin care champions and pressure ulcer incidence.</p>	<ul style="list-style-type: none"> <li>▪ Reduce pressure ulcer incidence by 50% with unit-based skin care champions who:</li> <li>▪ Receive intensive training on evidence-based pressure ulcer practice</li> <li>▪ Educate staff on pressure ulcer practice, and assist with care plan development</li> <li>▪ Round on at risk patients to ensure implementation of pressure ulcer interventions</li> <li>▪ Monitor compliance, and identify barriers to providing evidence-based care</li> <li>▪ Involve unit staff in ownership of action plans for improvement</li> <li>▪ Celebrate successes</li> </ul>
<p>Davidson, J., Dunton, N., &amp; Christopher, A. (2009). <a href="#">Following the trail:</a></p>	<p>To study the effect of unit characteristics on</p>	<ul style="list-style-type: none"> <li>▪ The risk of adverse events differs by unit type, acuity level, and service line.</li> <li>▪ There are lower fall rates in units with:</li> </ul>

Study	Objective	Conclusion
<p><a href="#">Connecting unit characteristics with never events.</a> <i>Nursing Management</i>, 40(2), 15-19.</p>	<p>the incidence of falls and pressure ulcers.</p>	<ul style="list-style-type: none"> <li>- Higher total nursing hours per patient day</li> <li>- Higher percentage of RNs</li> <li>- Longer RN unit tenure</li> <li>▪ There are fewer hospital-acquired pressure injuries in units with:               <ul style="list-style-type: none"> <li>- Higher percentage of RNs on staff</li> <li>- Longer RN unit tenure</li> <li>- More frequent pressure ulcer risk assessments</li> </ul> </li> </ul>
<p>[*] Halm, M. A. (2009). <a href="#">Hourly rounds: What does the evidence indicate?</a> <i>American Journal of Critical Care</i>, 18(6), 581-584.</p>	<p>To review available evidence about the effects of hourly rounds on clinical outcomes in inpatient settings.</p>	<ul style="list-style-type: none"> <li>▪ Hourly nursing rounds reduced the use of call lights in five of six studies.</li> <li>▪ Fall rates were reduced in seven of nine studies.</li> <li>▪ In eight of nine studies, hourly rounds resulted in improvements in:               <ul style="list-style-type: none"> <li>- Overall patient satisfaction</li> <li>- Likelihood to recommend</li> <li>- Attention to personal needs</li> <li>- Timeliness of nurses' response</li> <li>- Pain management</li> </ul> </li> </ul>