



Enhancing the Nursing Work Environment to Facilitate Top of License Practice

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UNIVERSITY
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Faculty Disclosure

| Faculty Name | Esther Chipps, Jacalyn Buck |
|----------------------------|-------------------------------------------------|
| Conflict of Interest | None |
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Mission

To improve health in Ohio and across the world through innovation in research, education and patient care.

Vision

By pushing the boundaries of discovery and knowledge, we will solve significant problems and deliver unparalleled care.

Values

We embody the Buckeye Spirit in everything we do through our shared values of inclusiveness, determination, empathy, sincerity, ownership and innovation

We are central Ohio's only academic medical center

7

hospitals

1,506

beds

9

multispecialty
centers

NCI

designated
comprehensive
cancer center

100+

facilities

Our patient care

\$215M

in annual
community benefit
focused on Ohio's
most pressing
health needs

#1

hospital in
Columbus metro
by *U.S. News &
World Report*

10

*U.S. News &
World Report*
ranked specialties

64,000

patient
admissions

CMS Five Star
Quality Rating

1.81M

outpatient visits

BY THE NUMBERS

3183

Staff nurses
with BSN or
higher

733

Advanced
practice nurses

35.6%

Certified staff
nurses

81.3%

of staff nurses
with BSN or
higher

21

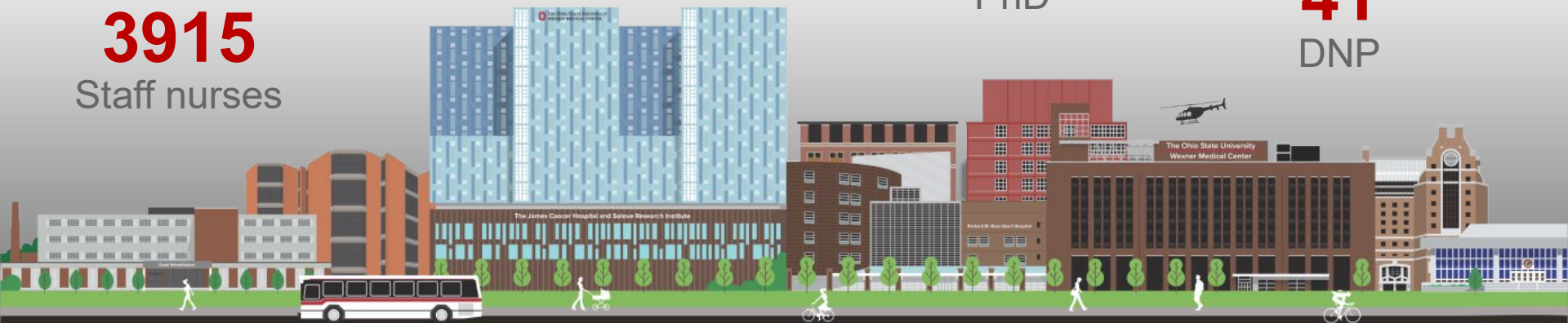
PhD

41

DNP

3915

Staff nurses





Our people

1800
faculty

800+
residents &
fellows

29K+
staff

3
Magnet -
designated
hospitals

7
Health Science
colleges on a
single campus

30K+
College of
Medicine alumni

National Nursing Excellence Awards



Session 1: Exploring Top of License Practice for Registered Nurses: A Time Motion Study

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This study was financially supported by **The American Nurses Foundation Research Grant Program (PI: J Buck)**



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Background

- Nursing care must become more **patient-centered, efficient, and cost effective.**
- Top of License Nursing Practice: **Nurses should practice to the full extent of their education.**



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Study Aims

- Observe nursing activities/workflow in three activity dimensions: communication, task, and location.
 - **Communication:** with whom nurses are interacting.
 - **Tasks:** the hands-on nursing activities.
 - **Location:** where nursing activities take place.



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Study Aims (cont.)

- 1) Quantify nurses' time allocation on communication, hands-on tasks, and locations.
- 2) Compare nurses' time allocation between different time blocks (7am-11am, 11am-3pm, and 3pm-7pm).
- 3) Discover nurses' multitasking and location traits.
- 4) Examine nurses' phone call interruptions.



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Multitasking vs. Task Switching

- **Multitasking:** concurrent multitasking (or dual task), interleaved multitasking (also called *task switching*), or sequential multitasking.
- **Task switching:** a rudimentary function of cognitive control requiring the flexible ability to configure and reconfigure tasks to meet shifting internal and external demands and cues.

In this study:



- **Multitasking:** the observable performance of two or more tasks simultaneously



- **Task switching:** alternating or changing between two separate tasks, sometimes rapidly but observably



Methods

- Setting and Sample
 - A medical-surgical unit in a Midwest academic medical center.
 - Inclusion criteria:
 1. Full-time staff Registered Nurses (RNs) with more than two years of acute care nursing work experience and
 2. > six months of work experience on the study unit.
- Study Design: observations of 4-hour time periods:
 - 7am to 11am
 - 11am to 3pm
 - 3pm to 7pm



Data collection

- TimeCaT (timecat.org)



Lopetegui M, Yen PY, Lai AM, Embi PJ, Payne PR. Time Capture Tool (TimeCaT): development of a comprehensive application to support data capture for Time Motion Studies. AMIA Annu Symp Proc. 2012;2012:596-605.

Communication

patient – education patient - non-education md family np
rn pca unit clerk team others call in call out

Other Stop Delete
Started at: 14:36:22 Duration: 00h 00m 12s
Edit name Fix time Add note

patient - non-education ✓ ↓ 14:36:06 2

Task

dir-assessment dir-medication dir-feeding dir- tube feeding
dir-adl dir-bed dir-position dir-ambulating dir-alarm
dir-vital dir-procedure dir-procedure-delegable indir-food tray
indir-prep med indir-get med indir-prep/clean indir- prep docs
ehr-charting ehr-review paper-charting paper-review
email/text paging info lookup hand-off/rounding supply-get
supply-fill up supply-call transportation-prep transportation-travel
help others housekeeping code/ert

dir-procedure Stop Delete
Started at: 14:36:27 Duration: 00h 00m 07s
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dir-assessment ✓ ↓ 14:36:04 2

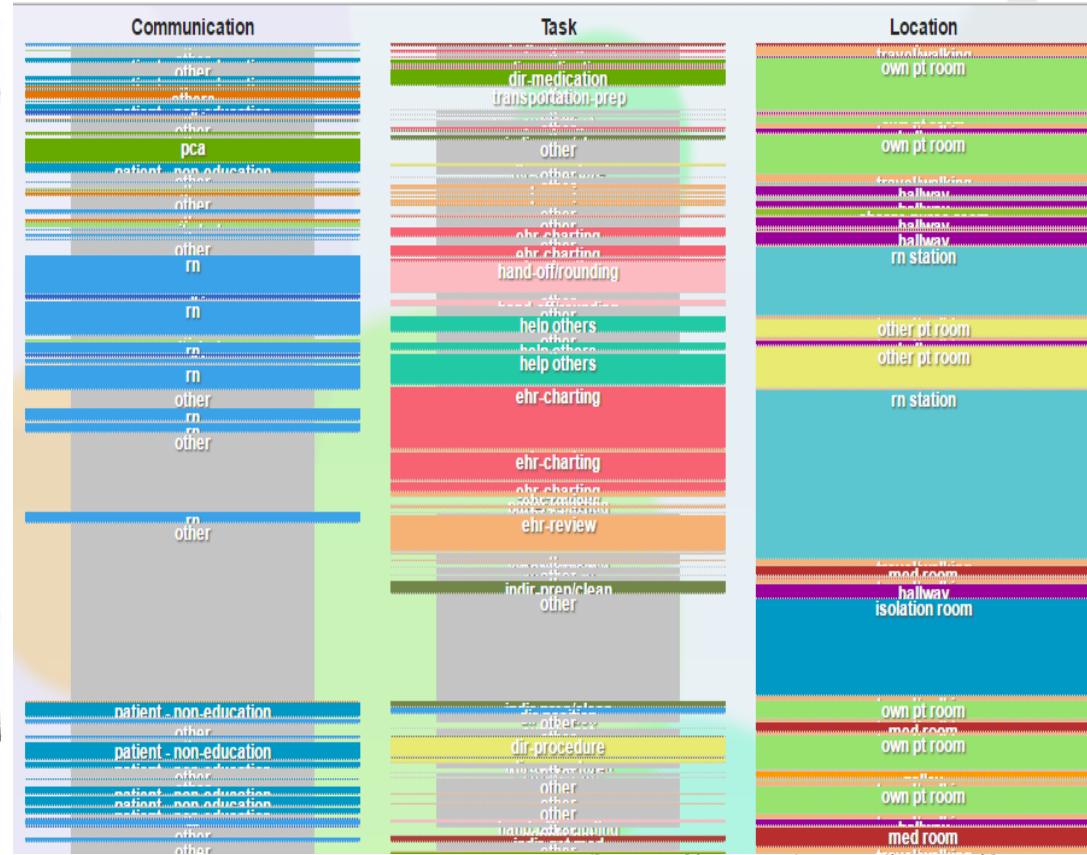
Location

travel/walking own pt room other pt room rn station
break room bathroom med room supply room hallway
off unit isolation room charge nurse room galley im room

own pt room Stop Delete
Started at: 14:36:01 Duration: 00h 00m 33s
Edit name Fix time Add note

travel/walking ✓ ↓ 14:35:56 2

©hills www.mycartoonthing.com



Data Analysis

- Activities distribution ranking on frequency and duration (7am-11am, 11am-3pm, and 3pm-7pm)
- Group differences on specific activities: (7am-11am, 11am-3pm, and 3pm-7pm):
 - Non-parametric independent-samples with the criteria alpha set at 0.05.
 - Post hoc pairwise comparison used Bonferroni correction.



Results

- 316 hours (79 valid 4-hour observations) with 15 registered nurses
 - 23 observations from 7-11 a.m.
 - 30 observations from 11 a.m.-3 p.m.
 - 26 observations from 3-7 p.m.



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Results (cont.)

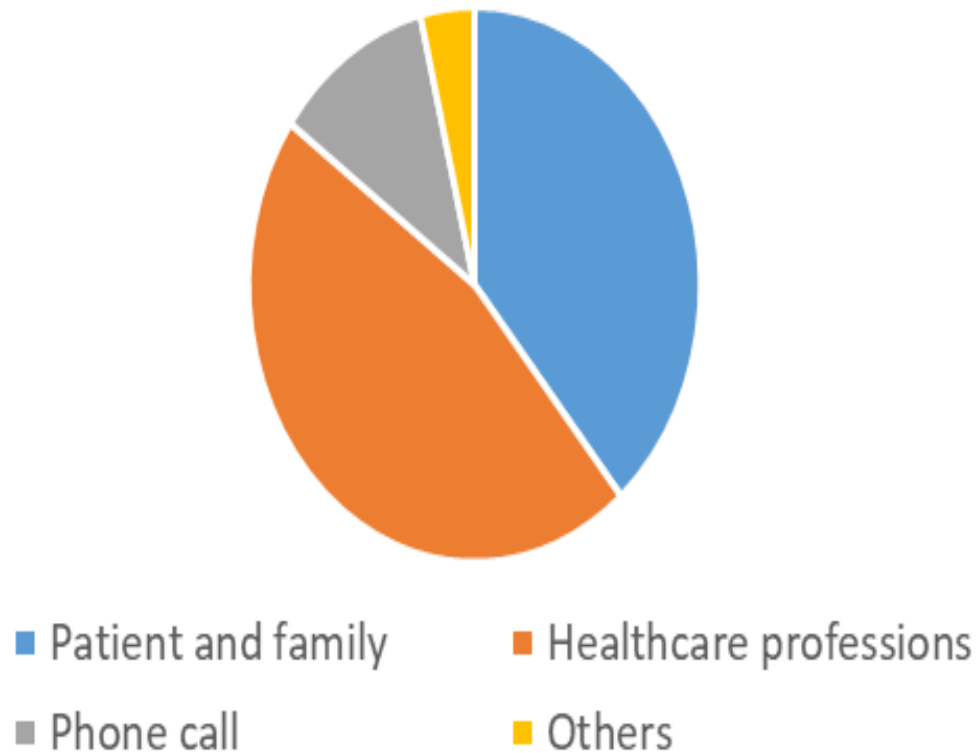
- Among the 79 observations:
 - Monday: 9
 - Tuesday: 14
 - Wednesday: 12
 - Thursday: 23
 - Friday: 16
 - Saturday: 2
 - Sunday: 3
- 7-11 a.m. vs. 11 a.m.-3 p.m. vs. 3-7 p.m.
 - Wilcoxon test (activity ranking): nurses distributed their time in activities similarly across three time blocks.
 - Kruskal-Wallis test shows differences in some group comparisons.



Communication

| Communication | |
|---------------|-------|
| | mins |
| Patient | 29.99 |
| RN | 26.68 |
| PCA | 6.20 |
| Call in | 5.44 |
| Call out | 3.99 |
| Others | 3.23 |
| Family | 2.43 |
| MD | 2.11 |
| Unit clerk | 1.76 |
| Team | 1.70 |
| NP | 0.06 |
| total | 83.59 |

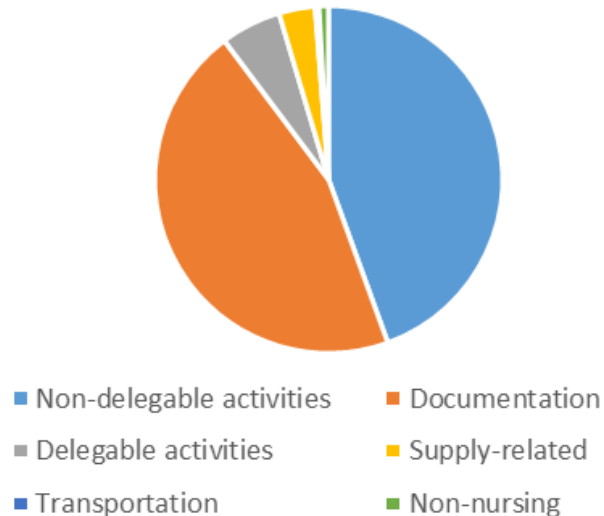
Communication



Hands-on Task

| Hands on task | | | |
|-----------------------|-------|-----------------------|------|
| | mins | | mins |
| ehr-charting | 31.63 | help others | 1.60 |
| ehr-review | 21.51 | dir-position | 1.51 |
| dir-medication | 15.70 | indir-prep med | 0.94 |
| indir-get med | 8.15 | indir-food tray | 0.84 |
| hand-off/rounding | 8.05 | code/ert | 0.72 |
| indir-prep/clean | 7.30 | dir-feeding | 0.57 |
| dir-procedure | 4.71 | supply-fill up | 0.47 |
| paper-charting | 4.16 | dir-bed | 0.47 |
| supply-get | 3.93 | transportation-prep | 0.46 |
| dir-assessment | 3.91 | dir-alarm | 0.44 |
| email/text paging | 2.89 | dir-ambulating | 0.40 |
| info lookup | 2.66 | dir-vital | 0.38 |
| paper-review | 2.47 | housekeeping | 0.34 |
| dir-adl | 2.00 | dir- tube feeding | 0.29 |
| dir-procedure-delegat | 1.82 | supply-call | 0.04 |
| indir- prep docs | 1.65 | transportation-travel | 0.02 |
| total | | 132.01 | |

Hands-on Task



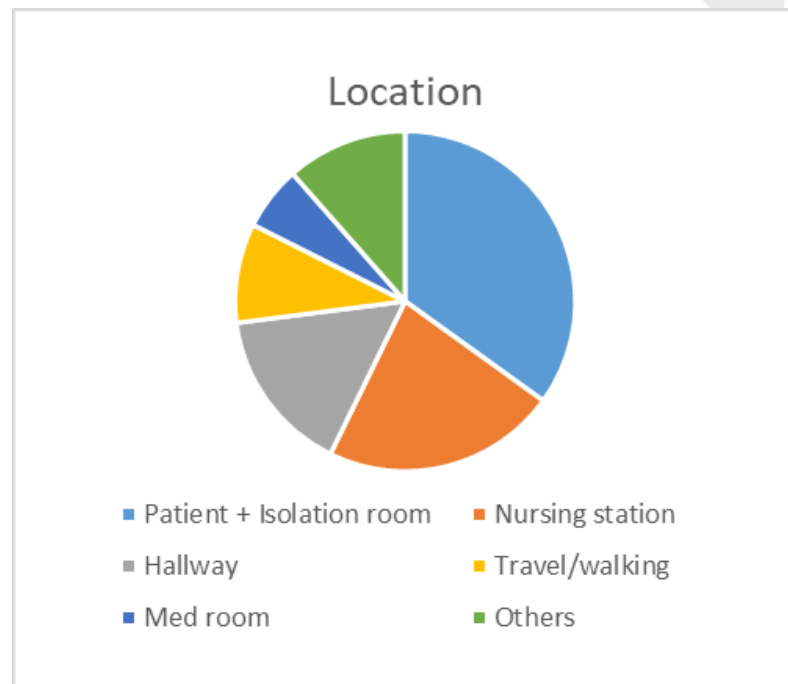
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Location

| Location | |
|-------------------|--------|
| | mins |
| Own pt room | 60.17 |
| Nursing station | 53.55 |
| Hallway | 37.74 |
| Travel/walking | 22.68 |
| Isolation room | 21.09 |
| Med room | 14.61 |
| Break room | 10.31 |
| Off unit | 7.37 |
| Charge nurse room | 4.06 |
| Galley | 3.10 |
| Other pt room | 2.63 |
| Bathroom | 2.04 |
| Supply room | 0.53 |
| BMI exam room | 0.20 |
| total | 240.07 |

| Hallway | |
|-------------------|------|
| Hands-on task | mins |
| EHR-charting | 8.11 |
| EHR-review | 5.61 |
| hand-off/rounding | 4.87 |
| indir-prep/clean | 2.11 |
| paper-charting | 1.12 |
| email/text paging | 0.87 |
| paper-review | 0.69 |
| info lookup | 0.58 |
| indir-prep med | 0.42 |
| indir- prep docs | 0.27 |
| total | 24.7 |



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Conclusion

- This work supports consistent and intensive multitasking work of nurses.
- The largest percentage of time spent on nursing hands was the EHR.
- Nurses spend 35% of their time in patient room.
- Thirty minutes over 4 hours were spent communicating to 5 patients (estimated 18 minutes per patient per 12 hour shift).
- Ten percent of RN time spent on activities that are delegable or non-nursing tasks.



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Session 2: Understanding Top of License Nursing Practice: A Qualitative Study of Staff RNs Experiences

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- Jacqueline Loversidge PhD, RNCC, AWHC Associate Professor. OSU College of Nursing
- Lynn Gallagher Ford- PhD, RN, NE-BC, DPFNAP, FAAN, Senior Director of Helene Fuld Health Trust National Institute for EBP
- Lynne Genter MS, RN, CCRN, Associate Director of Nursing Education (retired), OSUWMC

This study was financially supported by **The American Nurses Foundation Research Grant Program (PI: J Buck)**



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Background and Significance

- Top of license practice (TOL) addresses how nurses spend their time across their work shift and includes an examination of “non-value added” work; activities that can be safely executed by other healthcare personnel.
- Achieving TOL requires **re-definition and re-design** of healthcare teams based on consideration of what activities should be redistributed to nursing support staff, or to nursing team members, and what activities should be reduced in frequency or eliminated.



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Advisory Board Company: Top of License ¹

- Achieving TOL as defined the Advisory Board Company includes the following core activities:
 - Assess clinical and psychosocial patient needs
 - Establish patient goals and track progress
 - Provide patient centered outcome focused care
 - Educate and engage patient/families
 - Manage key components of the clinical record
 - Coordinate care with interprofessional caregivers
 - Facilitate safe patient transitions to next care setting
 - Assess and incorporate new technologies and evidence-based practice

¹ Nursing Executive Center: Defining TOL Practice; Washington DC: The Advisory Board; 2013



Study Aims

- To describe nurses' perceptions of nursing activities and analyze consistency with Top of License (TOL) practice.
- To describe differences in Associate Degree (AND) and Baccalaureate degree prepared (BSN) nurses' perception of TOL practice



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Methods

- Qualitative study with focus group discussions using a semi-structured interview guide.
- Purposive sampling
 - Inclusion criteria
 - Full time RN
 - More than 2 years acute care experience
 - 6 months on current unit
 - Exclusion criteria
 - Diploma preparation
 - Active enrollment in RN-BSN program
 - MS or Doctorally prepared



Semi-Structured Interview Questions

- Can you define nursing activities?
- What nursing activities do you perform during a regular shift?
- How do you categorize the activities into the eight responsibilities of the top-of-license practice?
- What would be the top 3 or 5 activities you would delegate to other staff, if given the opportunities?



Results: Demographics

- 14 RNs participated in 4 focus groups
- Mean age= 39.2
- Years of experience= 8.2 years
- 11 females/ 3 males

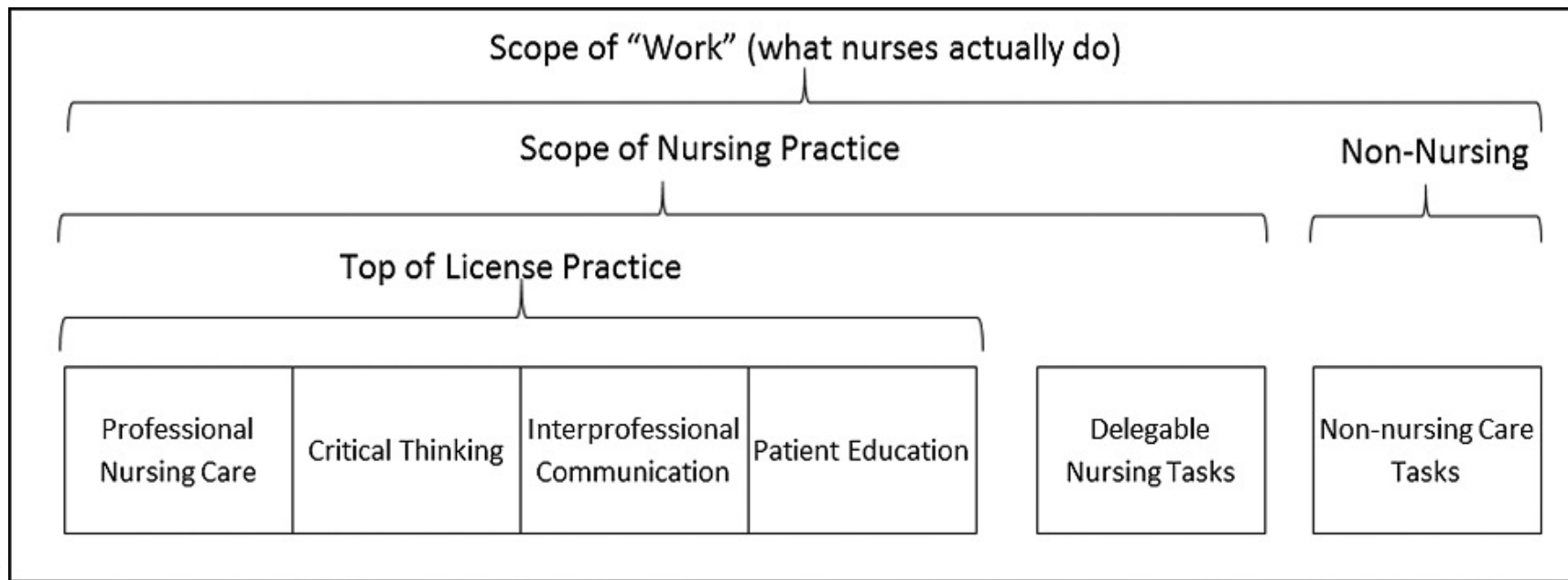


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Scope of Nursing Work

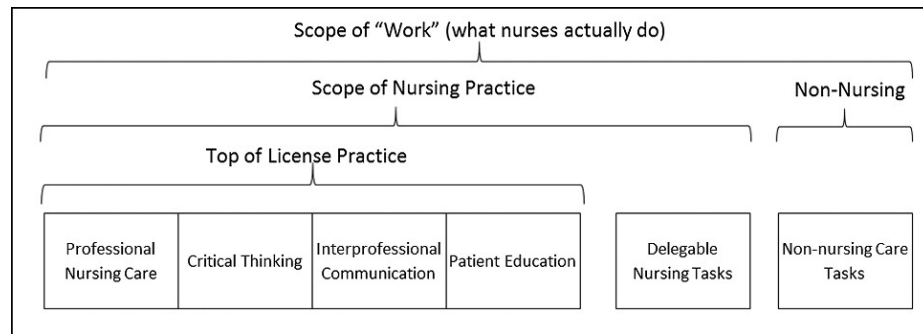


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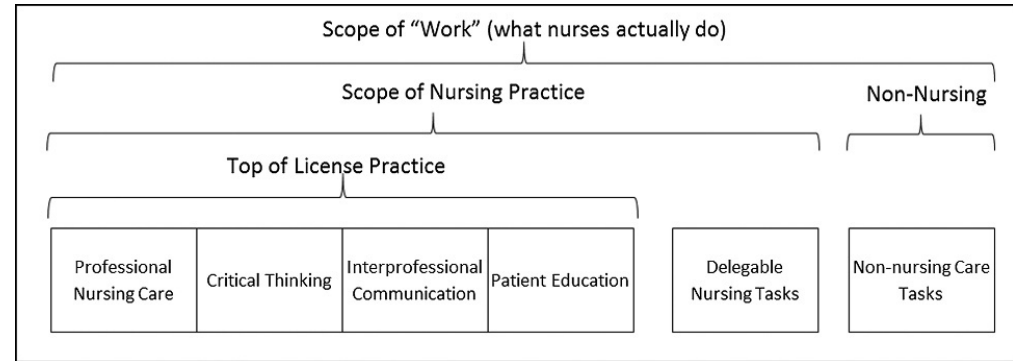
Subthemes in TOL Practice

- Professional nursing care, exemplified by direct physical/psychosocial patient and family care requiring high-level knowledge skills and abilities AND assessment/management/coordination of nursing care.
- Critical thinking, exemplified by complex clinical decision making
- Interprofessional communication
- Patient education



Delegable Nursing Tasks

- Nursing tasks that fell within scope of practice yet required **NO RN** judgment or decision making and could be delegated to UAP (eg ADL)
- Non-nursing tasks fell in scope of nursing work **BUT NOT** in scope of practice
 - Secretarial, housekeeping, transportation, dietary etc.



Hindrances to TOL Practice

- Frustrating communication with Other Providers on a Patient Plan of Care:
 - *“Communication is the key, whether it’s the patient or back to the doctors the patient may say, ‘Well, I wanted the doctors to know this and I didn’t tell him. You spend a lot of time tracking down things; things that didn’t get communicated, whether it be by accident or oversight or whatever”.*



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Hindrances to TOL Practice (cont.)

- Chaotic Shifts and Increased Cognitive Load:
 - *“We get all those phone calls. Transportation is on the way. Physical therapy: Can we see your patient? Sure. Occupational therapy: Can we see your patient? Sure. We get all those calls. You have to stop what you are doing and take the call to find out if it’s okay if somebody goes and sees your patient.”*



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Hindrances to TOL Practice (cont.)

- No Time for Emotional Support and Patient Education:
 - *“Communicating with the patient.... feel like sometimes I’m too busy to even talk to my patients.”*



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Hindrances to TOL Practice (cont.)

- Performing Delegable Nursing Tasks:
 - *“When I think of top of the license, I’m thinking things that we have to do as RNs that we can’t ask somebody else to take care of or---but we get asked a lot of the time to do all that other stuff. It takes away from the things that need to be done and are getting pushed back throughout the day. We’ll also pick up slack, whether it be bathing, vital signs, ambulating, toileting, inputs and outputs.”*



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Hindrances to TOL Practice (cont.)

- Performing Non-Nursing Care Tasks
 - *“Housekeeping: You mop it up...we do have housekeeping that comes in, but we are responsible for doing the first sweep of getting bodily fluids off the floor, or drink spill or if the patient has had an accident or if they’re incontinent.”*
 - *“Half the time we have to make sure our patient gets some food-making trays and bringing trays to the Automated Transport System room, and calling for the carts from the basement to get the trays”*



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Conclusion

| Advisory Board | Scope of Model |
|-----------------------------------------------------------|-------------------------------------------------------------|
| Assess clinical and psychosocial patient needs | Professional Nursing Care & Critical Thinking |
| Establish patient goals and track progress | Professional Nursing Care & Critical Thinking |
| Provide patient centered outcome focused care | Patient Education |
| Educate and engage patients and their families | Professional Nursing Care & Interprofessional Communication |
| Coordinate care with interprofessional caregivers | Interprofessional Communication |
| Facilitate safe patient transitions to next level of care | Interprofessional Communication |
| Assess and incorporate new technologies an EBP | Not identified by nurses in the study |

Conclusion (cont.)

- These findings can inform nursing leadership imperatives and development of innovative nursing care delivery models.
- We must aim to be support TOL practices!



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Acknowledgements

- This study was financially supported by **The American Nurses Foundation Research Grant Program (PI: J Buck)**
- The research team wishes to thank and acknowledge the nursing staff who participated in this study.

Session 3: Nursing Unit Design and Layout for Musculoskeletal Health and Nursing Practice Environment

Presenter: **Esther Chipps PhD, RN, NEA-BC**

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Background and Significance

- Multiple factors must be considered when designing nursing units.
- Nursing work spaces must promote workflow efficiency, be patient- and family-centered, sufficient in size to manage and store equipment, and promote patient and staff satisfaction.
- In recent years, meeting these challenging and multifactorial requirements has resulted in new nursing units with larger patient rooms that accommodate family-centered care and more space for larger equipment, adding to overall more square footage on units.



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Background and Significance (cont.)

- Risk of musculoskeletal injuries among nurses are well documented.
- Studies show nurses spend a lot of time walking yet few studies on lower extremity discomfort.
- Foot and ankle injury prevalence has been reported to range between 1.8%-74%.¹

¹ Reed LF, Battistutta D, Young J, Newman B. Prevalence and risk factors for foot and ankle musculoskeletal disorders experienced by nurses. BMC Musculoskelet Disord. Jun 5 2014;15:196.



Study Aims

- To describe the prevalence of lower extremity discomfort of RNs working in medical/surgical and intensive care units.
- To explore RNs' perceptions of nursing unit design and its' impact on their lower extremity activities.



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Methods

- Secondary analysis of larger cross-sectional study.
- Primary study
 - Mixed Methods
 - Cross-sectional survey (n=766)
 - Lower extremity activity measurement (ActPAL)
 - Semi-structured interviews



Sample

- All RNs working in health system were eligible (n=766)
- Included 18 units across 4 hospitals



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Measures

- Questionnaire (primary study): paper/email
 - 9 sections with 172 items (some from Nordic questionnaire)
 - Shiftwork
 - Physical and musculoskeletal health
 - Organizational factors/culture
 - Workspace design
 - Demographic questions



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Measures (cont.)

- Lower Extremity Activity Measurement (n=20)
 - activPAL™ 3-axis accelerometer (PAL Technologies Ltd., Glasgo UK) was used to count steps, walking and sitting during shift.
- Interview of activPal™ participants

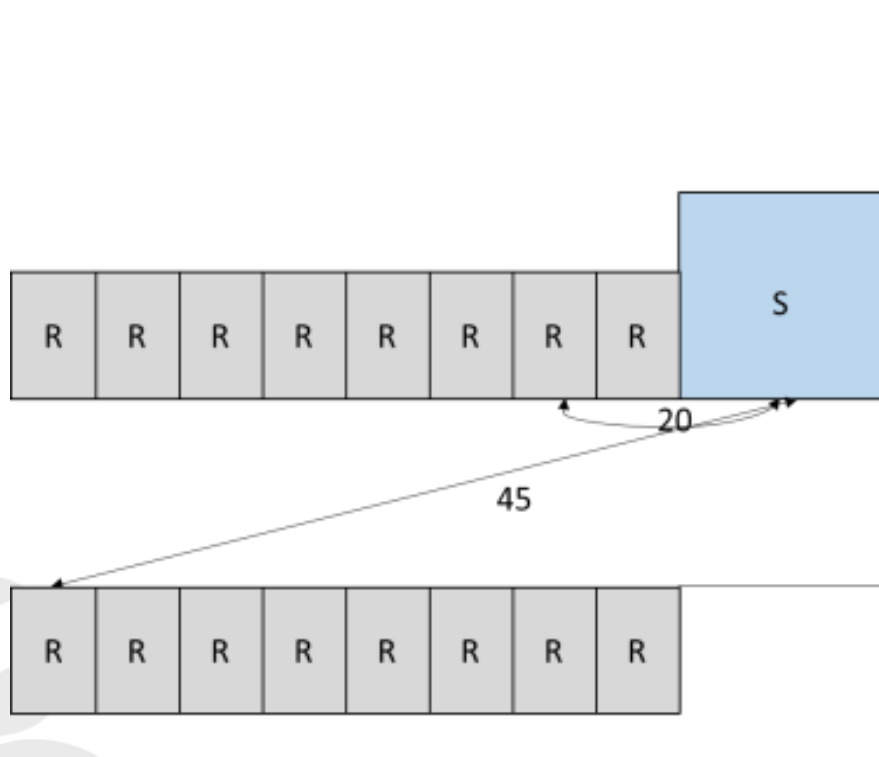


Data Analysis

- activPAL™ software was used to process the data-time sitting time standing, time walking, and step count.
- Descriptive statistics were calculated for all quantitative variables; lower extremity activity data were also calculated as percentage of shift time walking, sitting, and standing.
- Statistical comparisons were made among nursing units using pooled t-test, one-way analysis of variance (ANOVA), and Tukey's multiple comparisons test for pairwise differences.
- Interview data: Constant comparative approach (2 researchers)

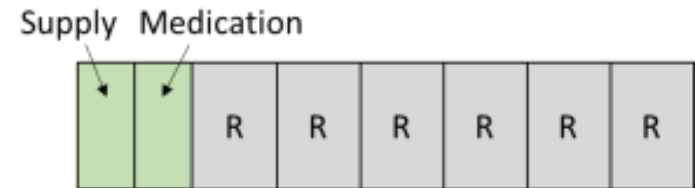
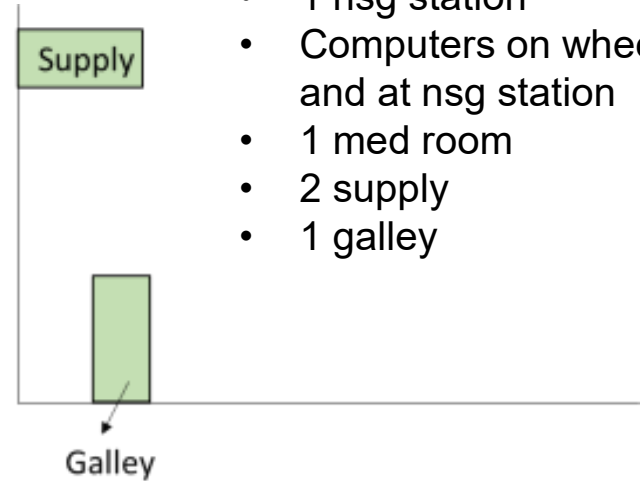


Med-Surg Unit 1



Linear Shape-22 rooms

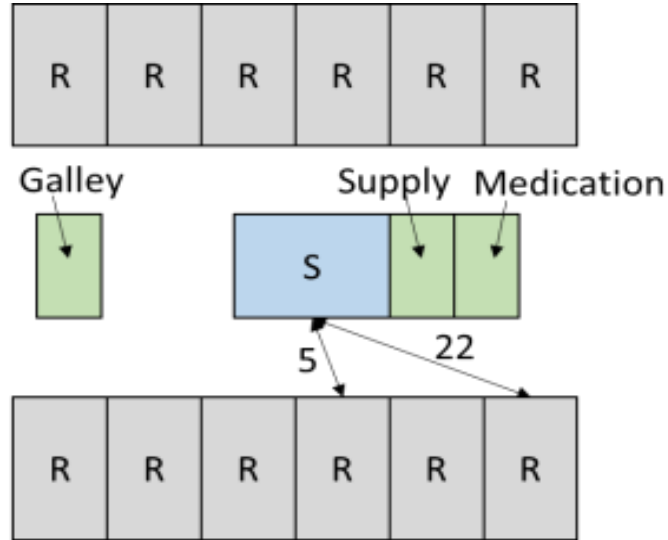
- 1 nsg station
- Computers on wheels and at nsg station
- 1 med room
- 2 supply
- 1 galley



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Med-Surg Unit 2



Pod Design- 12 rms X 3 pods

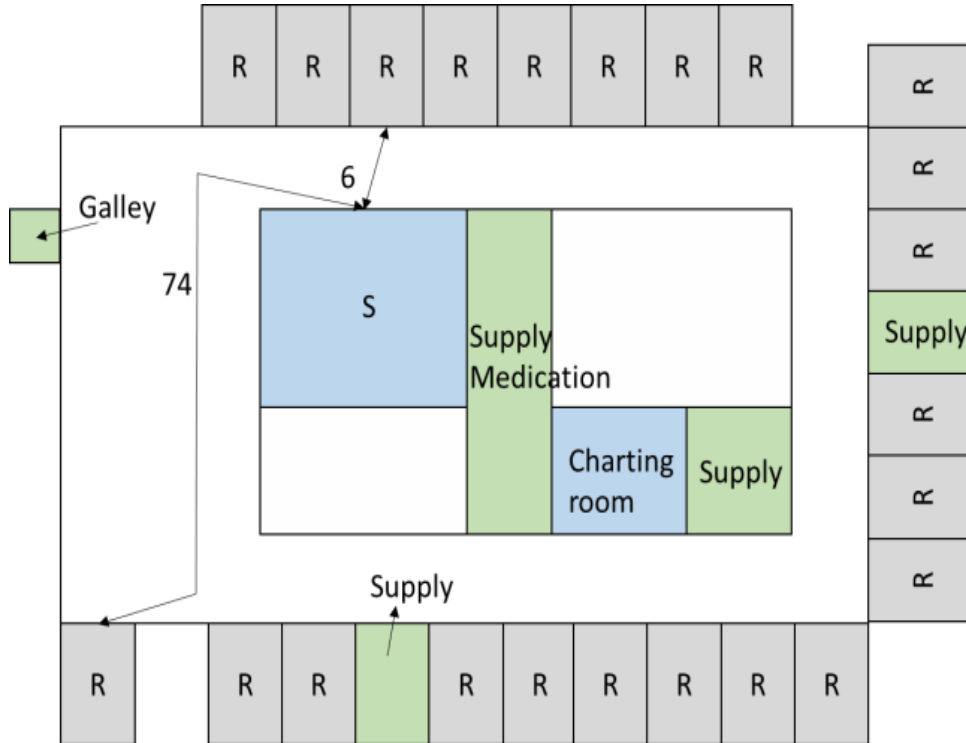
- 1 nsg station at each pod
- Computers in pt rms and at nsg station
- 1 med room
- 2 supply
- 1 galley



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Med-Surg Unit 3



Rectangular 23 rms

- 1 nsg station at each pod
- Computers in pt rms and at nsg station
- 1 med room (2 entrances)
- 3 supply
- 1 galley



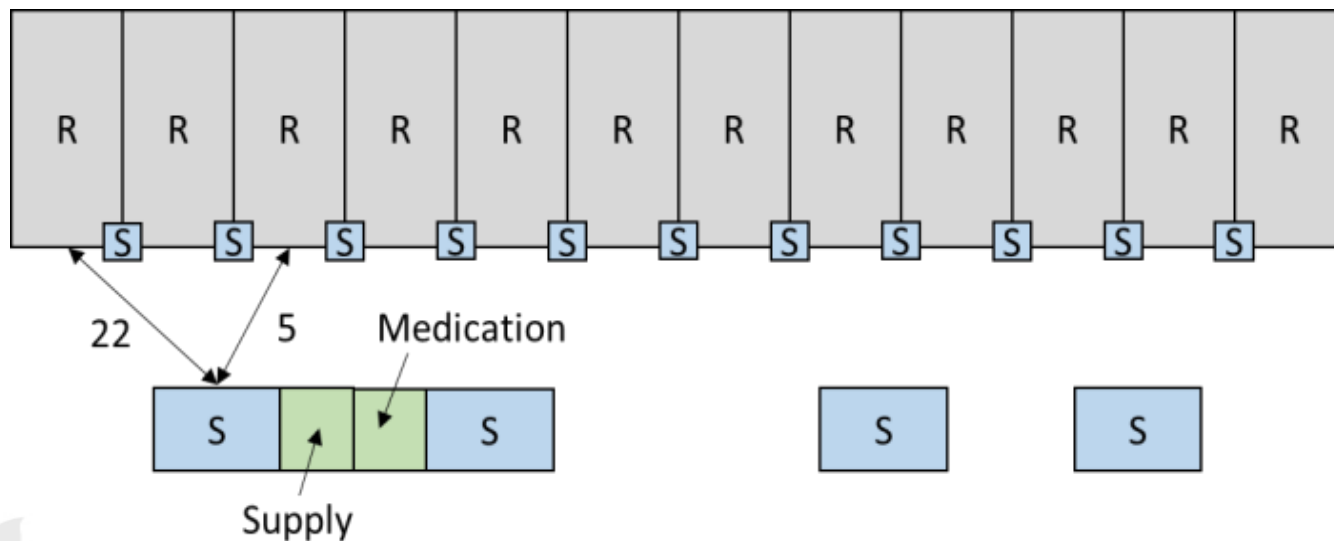
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Comparison of Lower Extremity Activity in M/S Units

| | MS 1-Linear | MS 2-Pod | MS3 – Rect | p |
|-------------------------------------------|-------------|--------------|---------------|------|
| Longest time not sitting, minutes | 83.7 (32.0) | 82.8(37.2) | 148.6(58.1) | .002 |
| Step counts per hr | 745.8(79.4) | 572.1(133.2) | 751.7 (210.5) | .01 |
| Percentage of shift sitting, % | 32.9 | 40.0 | 23 | .002 |
| Percentage of shift standing, % | 51.5 | 48.9 | 60.6 | .01 |
| Percentage of shift walking, % | 15.6 | 12.1 | 16.3 | .003 |
| Percentage of shift being on their feet % | 67.1 | 61.0 | 76.9 | .005 |

Intensive Care Unit 1



Linear Shape-12 rooms X
3 pods

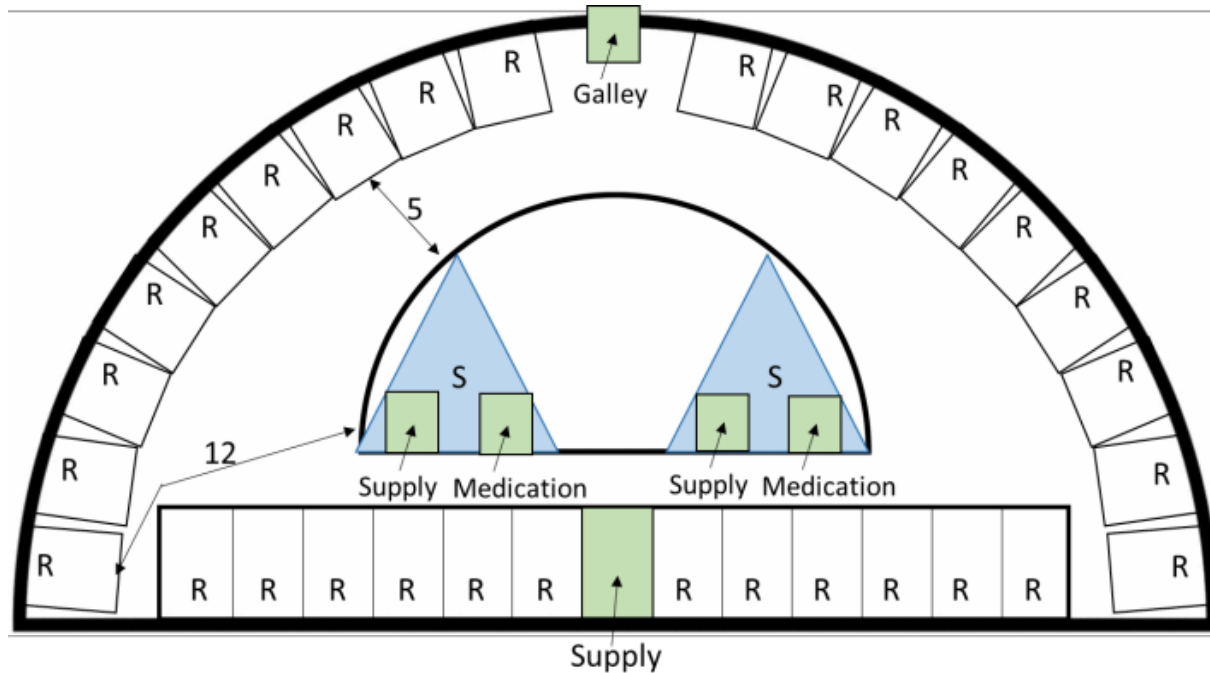
- 4 nsg station
- Computers in patient rms and at nsg station and charting stations outside pt rooms
- 1 med room
- 2 supply
- Galley between pods



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Results: Intensive Care Unit 2



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Comparison of Lower Extremity Activity in M/S Units

| | ICU 1-Linear | ICU 2-Circular | p |
|-------------------------------------------|--------------|----------------|-----|
| Longest time not sitting, minutes | 78.3(34.5) | 154.2(58.7) | .00 |
| Step counts per hr | 632.3 | 683.3 | .25 |
| Percentage of shift sitting, % | 38.2 | 21.0 | .00 |
| Percentage of shift standing, % | 47.8 | 64.8 | .00 |
| Percentage of shift walking, % | 14.0 | 14.1 | .83 |
| Percentage of shift being on their feet % | 61.8 | 79.0 | .00 |

Results: Unit Designs- M/S

- Long linear shaped units (MS1) and the rectangular unit (MS3) challenging to work on:
 - *“If you’re on the far end, you’re kind of out of luck some nights.”*
- Rectangular in shape (MS3), RNs walk a long distance to the front of the unit to access the nurses’ station. RN worked in the rectangular shaped unit (MS3) found working an assignment in the “back hallway” very physically challenging and isolating.



Results: Unit Design- ICU

- Preference for circular or pod units over linear units:
 - *“It’s more straight lines so you don’t see every patient room from the nurses’ station. So it’s hard to know, when the bed alarm is going off, you’re running around trying to figure out what room the bed alarm is going off. Whereas if it’s just a circular nurses’ station, you can see that, you can turn. You don’t have walls keeping you from it.”*



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Results: Location of Nursing Station

- RNs in M/S preferred to chart outside the room in the nursing stations
- RNs in ICU preferred to chart in the patient's room



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Results: Location of Medication/Supplies

- Very frustrating and often set-up “makeshift supply” areas:
 - *“It is frustrating. You are just spinning your wheels and you are not taking care of patients.”*



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Results: Patient Assignments

- Physical location of patient assignment is highly important. Not uncommon to have multiple patients assigned that are not geographically close:
 - *“Even in pod settings (MS2) - we ‘pod hop.’”*



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Results: Patient Visibility and Managing Alarms

- Patient visibility and ability to hear alarms is highly valued
- Workarounds = set-up makeshift “charting areas:”
 - *“Because you cannot, no matter what you do, see in your other patient’s room, and you can’t hear alarms very well. They echo up and down the hall. So like today, I heard a pump beeping in a room, I was walking down the hall, I walked three rooms the wrong way, because it echoes and you couldn’t tell where it was coming from. So it’s not safe.”*



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Results: Seating Availability

- Despite availability of seating, RNs prefer to stand:
 - *“I don’t like to sit in front of patients and feeling the need to be easily accessible for patients...by the time I go find a seat, sit down and start charting someone is going to call for something. It’s just easier to already be mobile.”*



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Results: Teamwork

- Unit layout impacts the ability to work as a team
- Some unit designs do not support co-worker assistance:
 - *“Can’t look around and see other staff, feel like you are all alone, there are no other people that can easily watch your patients. Whereas when layouts are organized into pods and RNs are assigned to pods, if I’m not available, they call my pod-mate to go help with my patients and vice-versa. Like if my pod-mate is busy, I help with her patients.”*



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Conclusions

- Average RN walked 8256 steps over 12 hour period
- Time spent walking is less relevant than time spent on their feet during 12 hour shifts
- RNs place high value on patient visibility and unit team work



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Implications

- Physical pods (smaller units) in centralized units can defray exposure to time on feet.
- Only effective if nurse-patient assignments are thoughtful.
- Failure to cluster assignments defeats the purpose of the pod concept.
- Consider ergonomic chairs and availability of chairs in appropriate locations.

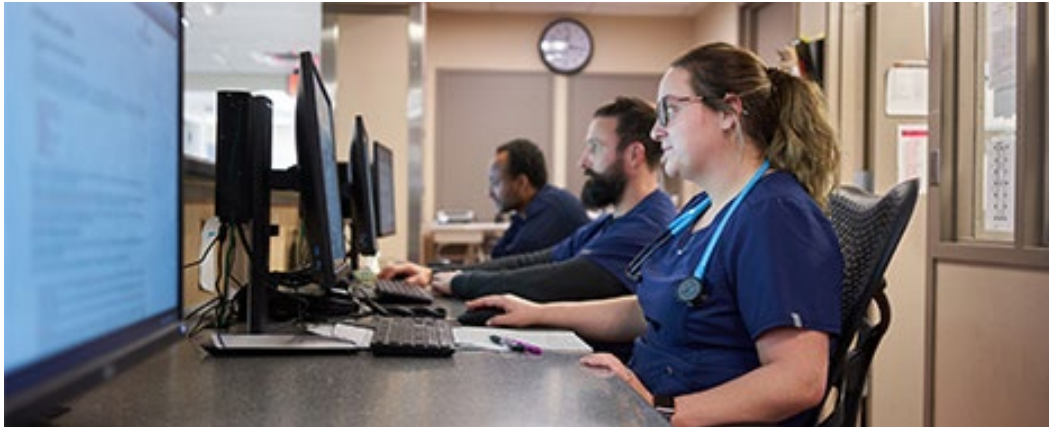


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Thank You

