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Implementation of a Patient Acuity Tool and the Impact on Nurse Satisfaction

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A Paper Submitted in Partial Fulfillment of the Requirements for

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In the School of Nursing at

The University of Texas at Tyler

by

Amber Denson

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Executive Summary

Increased workloads contribute to nurse stress, affect nurse-patient relationships, and can ultimately lead to nurse turnover (O'Connell, Nettleton, Bunting, & Eichar, 2020). Nurse satisfaction can also be influenced by nurse-patient assignments (Allen, 2019). Implementation of a patient acuity tool (PAT) to balance workload and evenly distribute patient acuity in nursepatient assignments can improve nurse job satisfaction, quality of care, and nurse retention (Firestone-Howard, Gonzalez, Dudjak, & Rader, 2017; Al-Dweik & Ahmad, 2019).

Discussions were held on a 20-bed medical-surgical unit in an acute care hospital with stakeholders that included the nurse manager, charge nurses and bedside nurses at staff meetings and shift huddles regarding the implementation plan of the patient acuity tool (PAT) change project. The PAT was well received and a pilot phase for implementing a PAT was initiated. Pre-PAT survey data was obtained showing the need for a change in the way assignments were given. The PAT was successfully initiated and utilized for 4 weeks in which weekly discussions continued and feedback was obtained from the nurse staff. The implementation phase was abruptly shortened due to the unexpected closure of the unit due to impact of the Coronavirus pandemic. The post-PAT survey data and verbal feedback obtained from stakeholders was enough to identify a marked improvement in nurse satisfaction with nurse-patient assignments post-implementation of the PAT as well as the high frequency of usage of the tool. The results received support the notion that using a PAT for making nurse-patient assignments can positively influence nurse satisfaction. The data surprisingly identified additional unanticipated benefits to the unit including patient safety and quality of care.

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Implementation of a Patient Acuity Tool and the Impact on Nurse Satisfaction

Rationale

Nurse-patient assignments impact patient and nurse satisfaction and the nurse-patient relationship (Allen, 2018). After discussion with the nurse manager and review of the results of a recent associate engagement survey conducted on a 20-bed general medical unit in an acute care hospital, it was apparent that the nurses desired more balanced acuity in their patient assignments. On this unit nurse-patients are assigned in "blocks," or rooms in consecutive order, with little to no consideration of acuity. While this is a very simple assignment making method, it allows for an unfair and unbalanced acuity mix, which can result in increased nurse workload further contributing to nurse job dissatisfaction. Increased nurse workload can affect teamwork, patient outcomes, patient and nurse recruitment and retention (Amenudzie, Georgiou, Ho, & Sullivan, 2017; Firestone-Howard et al., 2017).

An objective nurse-patient assignment-making tool that considers patient acuity and nurse workload is necessary to adjust the balance of patient acuity among the nurses on shift and boost nurse satisfaction with assignments. "Using a workload tool can help promote equitable nurse-patient assignments, which may improve nurse job satisfaction" (O'Connell et al., 2020, para. 4). A patient acuity tool (PAT) is useful in standardizing the nurse-patient assignment making process, evenly distributing patient acuity. The use of a PAT also allows bedside nurses to have input in the assignment making process (Firestone-Howard et al., 2017).

Literature Synthesis

A review of literature revealed that many studies support the use of a PAT to improve overall nurse job satisfaction, including satisfaction with workload and perception of fairness.

Implementation of a PAT was supported by nurses in medical units, revealed positive trends in nurse satisfaction, and satisfaction with workload distribution in patient assignments. Nurses reported that acuity was identified appropriately with the use of the PAT (Chiulli, Thompson, & Reguin-Hartman, 2014; DiClemente, 2018; and Firestone-Howard et al., 2017). In addition to equitable nurse-patient assignments, improved nurse-to-nurse communication was noted. Nurses also reported that that use of the PAT prompted critical thinking (Firestone-Howard et al., 2017). Giammona et al. (2016), conducted a quality improvement initiative using a Nursing Care Score, which was successfully implemented and revealed self-reported improvement in nurse satisfaction related to balanced workload.

Allen (2019) discussed the process of making nurse-patient assignments and explored the relationship of nurse-patient assignments and job satisfaction. Ninety-one percent of the nurse sample in this quality initiative project had participated in assignment making, with only a small percentage receiving formal training. Forty-three percent of this sampler were self-taught in assignment making. This supports the need for an objective standardized approach. Daily assignments contribute to overall job satisfaction according 97% of these nurses (Allen, 2019). Hairr, Salisbury, Johannsson, and Redfern-Vance (2014), does not speak directly to the use of PAT or workload. However, the significance of appropriate staffing and nurse-patient assignments is apparent and contributes to the quality of care provided by nurses. Retention is also affected by poor staffing and unbalanced assignments (Hairr et al., 2014).

Al-Dweik and Ahmad (2019) conducted a study which revealed a significant increase in nurse satisfaction with workload, standard of care, and overall job satisfaction after the implementation of the Perroca PAT in a Jordanian hospital. Ease of use of the PAT was noted in the post-implementation survey results in this study. A literature review further acknowledged

the effectiveness of different patient acuity tool models and classification systems and the effects on nursing and patient outcomes (Al-Dweik & Ahmad, 2020). Al-Dweik and Ahmad (2020) describes that nurse workload is highly influenced by patient acuity and if the two are balanced appropriately an increase in nurse satisfaction, patient safety and quality of care will be recognized. Griffiths et al. (2019) and Sir, Dundar, Steege, and Pasupathy (2016) overview nurse staffing tools and methodologies used to determine staffing requirements as well as workload. Different tools yield very different results. While there is evidence to support the use of such a tool to balance workloads, there is no significant evidence in this review to suggest any one tool or methodology over another.

Direct and indirect patient care activities as well as non-patient care activities must be considered when balancing workload as these are all factors that affect nursing duties throughout a shift (Acar & Butt, 2016). An observational study that utilized a methodology to balance workload based on acuity and considered the layout of the unit determined feasibility of such a change initiative (Acar & Butt, 2016). The Synergy Model for making balanced assignments is investigated in a quality improvement pilot project. While the Synergy Model was effective in making acuity-balanced nurse-patient assignments and can be adapted to a variety of patient populations, it was found to be complex and time-consuming (Amenudzie, et al., 2017).

Stakeholders

It is important to appropriately engage stakeholders to ensure success of a change project. Anyone affected by the project should be considered a stakeholder including charge nurses, bedside nurses, the nurse manager, and the patients. Nurse manager and charge nurse buy-in is crucial in driving the successful implementation of the project as their engagement will set the tone for the change project. Bedside nurse participation and buy-in can be influenced by the attitudes of other stakeholders. The bedside nurses are considered key stakeholders because their workload, daily routines, and satisfaction will be impacted by the use of the PAT for nursepatient assignments. Bedside nurse involvement in the early stages of implementation will play a key role in driving change initiatives. Patients are considered stakeholders in this change project because the nurses' workload can impact the nurse-patient connection and quality of care received (Allen, 2018).

Planned Evaluation

A sample of 25 full-time nurses working on a medical-surgical unit was invited by email to participate in pre-implementation and post-implementation surveys assessing nurse satisfaction with nurse-patient assignments prior to and after implementation of a PAT for making such assignments (See Appendices B and C). Pre-implementation and postimplementation survey results will be evaluated to determine if using a PAT for making nursepatients affects nurse satisfaction. During the pilot phase of this change initiative, the project leader monitored appropriate use of the PAT, continued to educate nurses on the use of the PAT, and received feedback for future modifications. Post-implementation results were evaluated at the end of the designated pilot phase to measure whether the initiative was successful or not.

Timetable/Flowchart

In January 2020, a discussion with the nurse manager of a 20-bed, general medical floor about associate engagement survey results exposed nurse dissatisfaction with the current nursepatient assignment method. A review of literature was conducted and discovered that PATs are useful in equitable nurse-patient assignments. Acuity-based assignments balance the workload and potentially increase nurse job satisfaction (Al-Dweik & Ahmad, 2019). Permission to implement the use of a PAT was granted by the nurse manager after a detailed discussion about

the benefits of the PAT as well as the implementation plan (See Appendix A). In the first week of February 2020, an email invitation to complete an anonymous pre-implementation survey was sent to the 25 full-time nurses employed on the unit.

Once the survey period ended, face-to-face discussions were held during the regular staff meeting as well as during shift huddles twice weekly. Charge nurse and bedside nurse education also took place beginning approximately 10 days prior to the start of the project. Sample scenarios were used for educational purposes to ensure appropriate use and nurse comfort with using the PAT. Implementation began during the first week of March 2020. Discussion and follow-up continued throughout the pilot period at regularly scheduled staff meetings and shift huddles.

Due in part to unforeseen circumstances related to the novel Coronavirus pandemic, this change project was interrupted in late March due to extended temporary closure of the unit related to a drastic decrease in census throughout the hospital (See Appendix I). After only four weeks of PAT use, the decision was made to proceed with the post-implementation survey. The same 25 nurses were invited to participate via email. Due to relatively low participation in the post-implementation survey, feedback was also received through face-to-face conversations. Suggestions for modifications will be considered for future re-implementation of this change project.

Data Collection Method

Pre-implementation and post-implementation surveys were borrowed from Firestone-Howard et al. (2017) and sent to 25 full-time nurses via email. The pre-implementation survey consisted of five questions using a 5-point Likert scale. The purpose of this survey was to assess

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nurse satisfaction specifically related to nurse-patient assignments. The same 25 nurses were invited to participate in the post-implementation survey via email.

The post-implementation survey consisted of the same five questions from the preimplementation survey, with the addition of three questions to assess frequency and ease of use of the PAT (See Appendices F, G, and H). The purpose of this survey was to measure nurse satisfaction with patient assignments after implementing the PAT. Verbal feedback postimplementation was also obtained through conversation. Pre- and post-implementation survey results and feedback were compared.

Cost/Benefit Discussion

"Nursing workload acuity affects nurses' ability to assess patient status and promote excellent patient outcomes" (Al-Dweik & Ahmad, 2019, p. 334). Unbalanced nursing workload can lead to medication errors, falls, and pressure injuries, diminishing the quality of care, nurse satisfaction, and nurse retention (Al-Dweik & Ahmad, 2019). According to the University of New Mexico (2016) the cost to replace just one nurse can range from \$37,700 to \$58,400. The average nurse salary on this unit is \$26.17 per hour. Total education and training time prior to PAT implementation equaled approximately one and half hours. The cost of materials for implementation was \$175 bringing the total cost of implementation to \$1,131.38. The cost of implementing this PAT for making nurse-patient assignments proves beneficial to the unit as well as to the organization when considering the cost of nurse turnover.

Discussion of Results

Nineteen of the 25 full-time nurses (76%) completed the pre-implementation survey, exceeding the goal of 75% participation. The implementation and usage of the PAT was well-received by the charge nurses and bedside nurses. Within the first two weeks, the nurse manager

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reported an increase in patient experience on the unit, as noted through daily leader rounding. Only 13 of the 25 nurses (52%) completed the post-implementation survey. Further feedback was received through informal face-to-face conversations. Means and standard deviations of the pre-implementation and post-implementation survey results were calculated (See Appendices D and E). Even with a low number of participants completing the post-implementation survey improvement in nurse satisfaction was recognized by an increase in the means of items one through four on both the pre- and post- surveys, as well as a decrease in the mean for item number five. A noticeable increase in patient experience was recognized by the nurse manager during leader rounding. Surprisingly, some unanticipated benefits of using the PAT were identified by the nurses and the nurse manager. During the four weeks the PAT was successfully in use, the unit reported only one fall. According to the nurse manager, in previous months, the unit averaged one fall per week. The nurse manager felt that the geographic distribution of the nurse-patient assignments allowed for the nurses to be more aware of safety concerns with other nurses' patients, allowing for more eyes on the unit, improving response time, and promoting teamwork. Other benefits identified through conversation with bedside nurses include increased time to focus on patient care activities, such as catheter care and medication administration.

Recommendations

A longer implementation period would provide stronger evidence to support the use of a PAT for nurse-patient assignments to improve nurse satisfaction. Upon re-opening of the unit, modifications should be made to the PAT to better suit the unit, and the PAT should be reimplemented. A plan should be developed to implement on other units on a floor-to-floor basis, making modifications unique to each floor. As the PAT migrates house-wide, the project leader would need to involve the information technology department to inquire about a potential electronic version of the PAT. Patient care should be continually evaluated and master's prepared nurses should continue to identify and implement change projects which are supported by the literature to improve nurse satisfaction, patient safety and quality of care.

References

- Acar, I. & Butt, S. (2016). Modeling nurse-patient assignments considering patient acuity and travel distance metrics. Journal of Biomedical Informatics 64, 192-206. http://dx.doi.org/10.1016/j.jbi.2016.10.006
- Al-Dweik, G. & Ahmad, M. (2019). Matching nursing assignment to patients' acuity level: The road to nurses' satisfaction. *Journal of Nursing Measurement*, 27(1), E34-E47. http://dx.doi.org/10.1891/1061-3749.27.1.E34
- Al-Dweik, G. & Ahmad, M. (2020). The effectiveness of patient acuity tool on nursing and patient outcomes: A literature review. *ISSN: 13412051*, *25*(1), 329-346.
- Allen, S. B. (2019). Assignments matter: Results from a nurse-patient assignment survey. MEDSURG Nursing, 28(2), 119-124.
- Amenuddzie, Y., Georgiou, G., Ho, E., & Sullivan, H. (2017). Adapting and applying the synergy model on an inpatient hematology unit. Canadian Oncology *Nursing Journal*, 27(4), 338-342. doi: 10.5737/23688076274338342
- Chiulli, K., Thompson, J., & Reguin-Hartman, K. (2014). Development and implementation of a patient acuity tool for a medical-surgical unit. Academy of Medical-Surgical Nurses, 23(2), 9-12.
- DiClemente, K. (2018). Standardizing patient acuity: A project on a medical-surgical/cancer care unit. *MEDSURG Nursing*, 27(6), 355-357, 387.
- Firestone-Howard, B., Gonzalez, J., Dudjak, L., & Rader, S. (2017). The effects of implementing a patient acuity tool on nurse satisfaction in a pulmonary medicine unit. Nursing Administration Quarterly, 41(4), E5-E14. doi: 10.1097/NAQ.0000000000254

Giammona, S., Arena, G., Calo, M., Barone, M., Scelsa, D., Lepre, A., ... Schlenk, E. (2016).
Nursing workload and staff allocation in an Italian hospital: A quality improvement initiative based on nursing care score. *Central European Journal of Nursing and Midwifery*, 7(2), 420-427. doi:10.15452/CEJNM.2016.07.0010

Griffiths, P., Saville, C., Ball, J., Jones, J., Pattison, N., Monks, T. (2020). Nursing workload, nurse staffing methodologies and tools: A systematic scoping review and discussion.
 International Journal of Nursing Studies, 103, 1-11.
 https://doi.org/10.1016/j.ijnurstu.2019.103487

- Hairr, D., Sailbury, H., Johannsson, M., & Redfern-Vance, N. Nurse staffing and the relationship to job satisfaction and retention. *Nursing Economics*, 32(3), 142-147.
- Ingraham, A., & Powell, J. (2018). Patient acuity tool on a medical-surgical unit. *American Nurse Today*. Retrieved February 11, 2020 from https://www.myamericannurse.com/patient-acuity-medical-surgical-unit/

O'Connell, A., Nettleon, R., Bunting, D., & Eichar, S. (2020). What works: equitable nursepatient assignments using a workload tool. Retrieved from https://www.myamericannurse.com/what-works-equitable-nurse-patient-assignmentsusing-a-workload-tool/

- Sir, M., Dundar, B., Steege, L., & Pasupathy, K. (2015). Nurse-patient assignment models considering patient acuity metrics and nurses' perceived workload. Journal of Biomedical Informatics, 55, 237-248. http://dx.doi.org/10.1016/j.jbi.2015.04.005
- University of New Mexico. (November 2016). The high cost of nurse turnover. Retrieved April 10, 2020 from https://rnbsnonline.unm.edu/articles/high-cost-of-nurse-turnover.aspx

Appendix A

Table 1. Patient Acuity Tool

Patient acuity tool

Using the patient acuity tool, RNs can assess patients' risk level to help create equitable, quantifiable assignments.

	1: Stable patient	2: Moderate-risk patient	3: Complex patient	4: High-risk patient	
	Clin	ical patient character	istics		
Assessment	Q8h VS Alert and oriented x4	• Q4h VS • CIWA-Ar ≤8	• Q2h VS • Delirium/ altered mental status • CIWA-Ar >8	Unstable VS (determined by ordered parameters)	
Respiratory	• Stable on room air	• Oxygen ≤2 L via NC	• Oxygen >2 L via NC • Tracheostomy	 Oxygen via mask Can't maintain secretions independently 	
Cardiac	VS (determined by ordered parameters)	Low-grade temp: 98.7°F-100.3°F Pacemaker/AICD HR >130	Change in BP Temp > 100.3°F	• Unstable rhythm • Atrial fibrillation or PE	
Medications	PO/IVPB Blood glucose normal	TPN/heparin infusion Blood glucose requiring notifying provider Blood draws from PICC Dialysis	CBI 1 unit blood transfusion Fluid bolus for BP	 >1 blood transfusion Chemotherapy 	
Drainage devices	• ≤2 drains (Jackson- Pratt, hemovac, percutaneous nephrostomy, etc.)	Chest tube to water seal Nasogastric/ nasoduodenal tube Continuous tube feeding	Chest tube to suction Drain measured q2h Bolus tube feeding	Drain measured q1h Chest tube output >100 ml/ 2h	
Pain management	Pain well managed with with PO or I.V. meds every 4 hours	 Patient-controlled analgesia/nerve block Nausea/vomiting 	Q2h pain management	• Uncontrolled pain with multiple pain devices (IV, IM, PO, etc.)	
	N	urse workload indicat	ors	72	
dmit/discharge/ ransfer + Stable transfe • Routine discharge		• Discharge to outside facility	New admission Complex discharge Discharge to hospice	Complicated postop Transfer to higher-level care	
Education and/or psychosocial	• Calm, cooperative	Anxious/slightly agitated Education needed	New trach/ amputee Translator needed Requires consistent assistance (>q1h)	• End-of-life care	
Wound, ostomy, continence	QD/BID dressing Wound vac One-person assist to bathroom/ bedpan	Ostomy/rectal tube Enema Bowel prep Incontinent b/b	TID/complex dressings by RN High-output ostomy Multiple wound vacs	Active drainage, change >30 min or >TID • Q1h toilet needs	
ADLs & isolation	 Independent in ADLs Standard precautions 	 Assist with ADLs Two-person assist for out of bed Isolation (contact, enteric) 	Turns q2h Bedrest Respiratory isolation	 Paraplegic or quadriplegic Total care (lifts) 	
Safety	• Falls risk	• Sitter 1:1	Bed alarm without sitter Sensory deficits (blind, deaf, etc.)	Highly agitated 1:1 Restraints	
Patient score:	Most = 1	Two or more = 2	Any = 3	Any = 4	

Patient acuity tool borrowed from https://www.myamericannurse.com/patient-acuity-medical-surgical-unit/

Appendix B

Pre-Implementation Survey								
Nurse-Patient Assignment Satisfaction (Pre-PAT)								
Please complete this survey based on current nurse-patient assignments.								
Survey modified from Firestone-Howard, Gonzalez, Dudjak, & Rader (2017).								
How satisfied are you with	distrib	ution o	f patie	nt acuit	y in yo	ur daily assignments?		
completely dissatisfied	1	2	3	4	5	completely satisfied		
Assignments on this unit a	re fair a	and equ	iitable?	•				
completely disagree	1	2	3	4	5	completely agree		
If you feel that they are not equitable, please describe why?								
The bedside RNs assessme	nt of ac	uity is	reflecte	ed in pa	tient as	signments?		
completely disagree	1	2	3	4	5	completely agree		
Patient acuity is considered by the charge RN when making patient assignments?								
completely disagree	1	2	3	4	5	completely agree		
Geographic location is more important to me than patient acuity?								
completely disagree	1	2	3	4	5	completely agree		

Appendix C

Post-Implementation Survey									
Nurse-Patient Assignment Satisfaction (Pre-PAT)									
Please complete this survey based on nurse-patient assignments using the patient acuity tool.									
Survey modif	fied from Firest	one-Ho	ward, G	onzalez	z, Dudja	ık, & Ra	uder (2017).		
Survey modified from Firestone-Howard, Gonzalez, Dudjak, & Rader (2017).									
How satisfied are you with distribution of patient acuity in your daily assignments?									
completely di	ssatisfied	1	2	3	4	5	completely satisfied		
Assignments on this unit are fair and equitable?									
completely di	completely disagree 1 2 3 4 5 completely agree								
If you feel th	at they are not	t equita	ble, ple	ase des	cribe w	hy?			
The bedside	RNs assessme	nt of ac	uity is r	eflecte	d in pat	tient as:	signments?		
completely di	sagree	1	2	3	4	5	completely agree		
Patient acuit	y is considered	d by the	e charge	e RN w	hen ma	king pa	tient assignments?		
completely di	sagree	1	2	3	4	5	completely agree		
Geographic	location is mor	re impo	rtant to	o me tha	an pati	ent acui	ty?		
completely di	sagree	1	2	3	4	5	completely agree		
The PAT wa	s easy to use?								
Completely d	isagree	1	2	3	4	5	completely agree		
How often was the PAT used?									
	0-25% 25-50% 50-75%				%	75-100%			
The PAT was used when admissions were assigned?									
Yes, always Sometimes					No, never				

Appendix D

Pre-PAT Implementati on N=19	Completely Disagree/ Completely Dissatisfied	Disagree/ Dissatisfied	Neutral	Agree/ Satisfied	Completely Agree/ Completely Satisfied	Mean	SD
How Satisfied are you with distribution of patient acuity in your daily assignments?	1	12	21	12	10	2.9474	7.1204
Assignments on this unit are fair and equitable?		14	21	16	5	2.9474	6.6833
The bedside RNs assessment of acuity is reflected in patient assignments?	3	20	6	12	5	2.4211	6.9065
Patient acuity is considered by the charge RN when making patient assignments?	2	20	15	4	5	2.4211	7.855
Geographic location is more important to me than patient acuity?	1	24	15	4		2.3158	10.5515

Table 2. Pre-PAT Implementation Survey Results

Appendix E

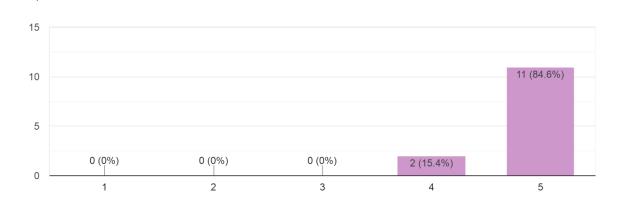
Post-PAT Implementati on N=13	Completely Disagree/ Completely Dissatisfied	Disagree/ Dissatisfied	Neutral	Agree/ Satisfied	Completely Agree/ Completely Satisfied	Mean	SD
How Satisfied are you with distribution of patient acuity in your daily assignments?		2	6	16	30	4.1538	12.4766
Assignments on this unit are fair and equitable?			9	20	25	4.1538	8.1854
The bedside RNs assessment of acuity is reflected in patient assignments?			12	12	30	4.1538	10.3923
Patient acuity is considered by the charge RN when making patient assignments?			9	20	25	4.1538	8.1854
Geographic location is more important to me than patient acuity?	5	12	6			1.7692	3.7859

Table 3. Post-PAT Implementation Survey Results

Appendix F

Figure 1. PAT Ease of Use

The PAT was easy to use? 13 responses

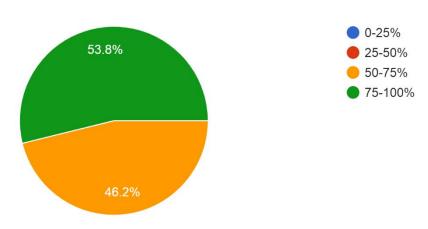


Graph copied from survey results on Google Forms.

Appendix G

Chart 1. PAT Frequency

How often was the PAT used? 13 responses

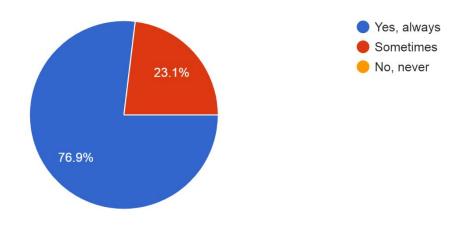


Graph copied from survey results on Google Forms.

Appendix H

Chart 2. PAT Frequency with Admissions.

The PAT was used when admissions were assigned? 13 responses



Graph copied from survey results on Google Forms.

Appendix I

Figure 1. PAT Flowchart

