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## Acuity Adaptable Nursing Units in Oncology

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**W**estern Regional Medical Center (WRMC) is the newest facility within the Cancer Treatment Centers of America® (CTCA) network. As the newest CTCA facility, the leadership and clinicians at WRMC embraced many innovative strategies and treatment options to provide patients with an environment that promotes hope and well-being. One of these strategies is the adoption of the acuity adaptable model of care. The acuity adaptable unit (AAU) has been operational since December 2009 with many challenges overcome and lessons learned. This article provides an overview of the current evidence on AAUs, as well as a review of the challenges and opportunities that the implementation of an acuity adaptable model presents. Leadership and organizational issues related to the planning, adoption, and implementation of this innovative oncology care model will be addressed. This article will demonstrate how the model was planned, implemented, measured, and analyzed. The analysis of the model will explain solutions that have been put into practice and recommendations for future growth and evolution of the model.

The AAU design has been adapted by a few medical centers nationwide in an attempt to improve patient care. Healthcare leaders have suggested that the AAU model represents the future of the industry (Lipschutz, 2008). However, healthcare administrators must consider the benefits and challenges of the acuity adaptable nursing model when introducing it into their facilities' growth plans. The clinical leadership team examined the effects on nursing staff after implementing an AAU at WRMC. The AAU was the first patient care unit of its kind in Arizona.

Patients with cancer often require many transfers because of the changing level of their disease. Typically patients are moved to a different unit in the hospital (e.g., intensive care unit, medical-surgical, telemetry) each time their level of care changes. When these transfers oc-

cur, a high degree of anxiety is imposed on the patient and caregiver, as well as an increase in incidence of errors. In an AAU, the patient is able to stay in one room and be cared for by the same nursing team throughout his or her hospital stay. This model fosters high patient and caregiver satisfaction, decreased error rates, and increased continuity of care.

### Project Site Description

Founded in 1988, CTCA provides a comprehensive, patient-centered treatment model that fully integrates traditional state-of-the-art medical treatments with scientifically supported complementary therapies.

### Goals

The objectives of the AAU are to (a) increase patient satisfaction and decrease nurse movement away from the patient, (b) decrease medication errors, and (c) increase staff satisfaction. The nursing staff focused on three components of the AAU design: universal room design, decentralized nursing stations, and nursing education. Although many areas were involved in the AAU implementation, these three components provided a structure in which staff organized their thinking and created a milieu that would allow brainstorming opportunities in specific areas.

The universal room design played a role in the decision to have decentralized nursing stations. CTCA is an entirely paperless hospital and successfully uses the electronic health record (EHR) systems. This allowed for nursing stations to be placed directly next to the universal rooms for more personalized care.

**Universal room design:** The universal patient room safely accommodates the critical care needs of patients in intensive care and provides space for high-tech equipment. An efficient room layout is designed to decrease wasted staff motion during treatment, with dedicated space for the staff, patient, and family.

For example, a recliner chair is located next to the patient's bed to provide an option to leave the bed. In addition, this design minimizes the time a nurse might take to move a patient out of his or her bed to a common area with chairs and allows the nurse to change the bedding while the patient is still in the room. The room also meets the needs of a recovering critical care or telemetry patient, with space for patient ambulation and family visitation. The room design also has a focus on comfort and privacy.

**Decentralized nursing stations:** Alcoves are located between each patient room to allow for more immediate patient and caregiver needs. In the past, medical information was stored on paper and centralized nursing stations were necessary to keep all medical data in one physical place. With an entirely paperless system and the implementation of an EHR, multiple nursing stations are feasible, thereby enhancing the efficiency and quality of nursing care. Nurses can be closer to the patient in the AAU with multiple nursing alcoves (Mayo, 2010).

**Nurse education:** Many opportunities exist to educate oncology nurses who provide care on the AAU. A customized acuity adaptable orientation that lasts approximately six weeks is completed by all AAU nurses. Shadowing and preceptor programs were created specifically with the AAU in mind. The shadowing program pairs a seasoned AAU nurse with a developing nurse. This partnership allows for real-time observations of the unit and opportunities for in-depth questioning and mentoring opportunities. In addition, documentation of the nurses' cross-training competencies assists in quickly adapting staffing levels on the AAU to meet the changing acuity levels of the patients. An increase in oncology nurse performance, regarding an increase in staff confidence and competence relating to fewer errors and high nurse satisfaction, also has been noted with oncology nurse cross-training, as well as an increase in operational effectiveness, specifically on the AAU. The

oncology nurses have a better understanding of what other positions require and, as a result, they have been able to identify ways to improve process flow in the unit. Cross-training has been shown to be beneficial to the AAU by keeping costs down and maintaining the unit at optimal functioning. With oncology nurses able to perform multiple roles, the need to hire additional employees has decreased, as has overtime use. The patients and caregivers report a high degree of trust and confidence in the care provided because of the breadth and depth of knowledge exhibited by the AAU nurses.

One of the most valuable educational activities for the AAU has been patient simulation. Patient simulation is intended to replay real patient care scenarios that have occurred at CTCA (see Figure 1). Through these simulations, the nurses are able to develop patient-care skills, prepare for rare oncology emergencies, and continue their education.

Developing an educational simulation program requires the creation of a simulation patient (see Figure 2) and identifying the clinical specialty area of focus. Prior to the simulation, the education team must prepare a story board or decision tree describing what will happen during the simulation and how the student would demonstrate the learning objectives. In addition, creating a guided reflection of questions and answers for this simulation

based on the objectives also is useful for discussion after the simulation. Finally, creating a strong simulation environment before the scenario begins is important for the success of the scenario, including, for example, special equipment in the room, positioning of the simulated patient (mannequin), or medication availability.

A fictitious patient profile is provided to the nursing staff prior to the simulation to familiarize them with their patient. The simulation provides continuing education credit to the nursing staff. A simulation template is used to guarantee consistent delivery of the simulations. The template requires objectives to be identified to ensure that the nurses are guided during the simulation. In addition, the template asks for a story board, action steps, and the creation of a decision prior to the simulation. On completion of the simulation, the objectives are revisited and discussed with guided reflection among the participants. Having a preparation process and structure allows for the patient simulation exercise to be a valuable educational opportunity.

## Acuity Adaptable Unit Implementation Experiences

Tracking and measurement in the following three areas were conducted to provide the oncology nurses with better insight into the successes and challenges of the AAU implementation. These included summarizing AAU nursing activity measures: patient satisfaction, medication errors (see Table 1), and staff satisfaction.

**Patient satisfaction:** The Patient and Companion Satisfaction survey was conducted from July 2009 to January 2010 and the results show that overall satisfaction was 97%. The survey is given to all new and returning patients at WRMC (survey given to approximately 200 patients). This measurement obtains anonymous reports from patients about services and experiences at CTCA and it allows CTCA administrators to identify ways to improve the overall patient experience, as well as the patient experience on the AAU. Individualizing the patient's care is a critical factor to attaining higher patient satisfaction scores.



**Figure 2. Patient Simulation Training**

Note. Image courtesy of Cancer Treatment Centers of America®. Used with permission.

## Nurse satisfaction and retention:

Anonymous surveys of the nursing staff are administered annually through a stakeholder loyalty survey to obtain nurse feedback in regard to their satisfaction with the AAU model. Nursing turnover on the unit was 33% from January 2009 to January 2010, which is higher compared to the facility turnover of 23%. CTCA found that additional cross-training and educational opportunities play a role in reducing nurse turnover, and the rate from February 2010 to September 2010 dropped to 2%. The satisfaction score is monitored annually to better understand how to increase nurse satisfaction.

**Medication errors:** The medication errors rate from January 2009 to January 2010 was 1.4%, dropping to 1.35% from February 2010 to September 2010. The rate continues to be monitored by the clinical informatics staff. A medication error is defined as an incorrect administration of a medication. This may include a mistake in the actual drug, dosage, or route of administration. With the AAU model, the patient is able to stay in one room and be cared for by the same nursing team throughout his or her hospital stay so the nursing team on the unit is familiar with the patient's treatment regimen. In essence, no "hand-offs" take place when a patient's level of care changes.

## Pilot Outcomes

This project served as pilot to determine whether the next CTCA facility in Atlanta, GA (slated to break ground by the end of 2011), should be designed to include the AAU model. The Arizona pilot project also is serving as a catalyst for dialogue as to whether to retrofit

This simulation was conducted in the infusion center and focused on how to assist a patient having a chemotherapy reaction.

- **Age:** 75
- **Height:** 5'4"
- **Weight:** 155 lbs.
- **Illness:** Breast cancer
- **Religion:** Roman Catholic
- **Ethnicity:** Irish
- **Favorite food:** Corn beef
- **Favorite color:** Green

**About Anne:** Anne is the oldest of six children and has 12 grandchildren. She loves being part of a big family and is in charge of cooking Thanksgiving dinner every year. Anne loves to dance and listen to music. She is particularly good at playing the piano. While visiting a daughter in Phoenix, Anne has enjoyed shopping, meeting new people, and attending a game at the University of Phoenix football stadium.

**Figure 1. Patient Profile Simulation Scenario**

other existing facilities to this model. In March 2010, an announcement was made that the CTCA site in Atlanta would indeed be designed using the AAU model. This decision was based on the Arizona outcomes, with input from CEOs from each of the CTCA facilities, as well as vice presidents of patient care services from each facility.

To better understand the results and deepen the analysis of the AAU, the authors have partnered with Health Workforce Solutions, LLC, to conduct a preliminary investigation of AAU delivery models and best practices. The primary focus of this four- to six-week engagement is aimed at providing the CTCA team with a strategic partner to assist in identifying comparable models, understanding which models have proven to be most effective and why, and which ones show the greatest promise for possible implementation at CTCA facilities.

The AAU implementation at CTCA was followed by extensive analysis of the model to further understand lessons learned and to create recommendations for future growth and evolution.

### Major Barriers

A need exists to cross-train nurses in different areas so they have experience for diverse situations on the AAU. With the small size of the unit (14 beds) and the complexity of the patient population, the majority of the nursing staff throughout the facility had to be cross-trained in a variety of levels of care. In addition, all nursing staff on the unit must have the requisite skills to administer chemotherapy. The cross-training allowed for flexibility, convenient staffing, and increased patient safety. However, the cross-training does require added expenses, such as time away from the unit for nurses to be trained. The cross-training process required a full-time education oncology nurse who could spend time training nurses in the various areas. A competency database was found to be a valuable tool to maintain on the areas of cross-training that the nursing staff completed.

The recruitment process of finding the desired nurse skill set involved specific interviewing and collaboration of nursing leadership, clinical education, and the nurse recruiter. During the interview process, the candidate shadowed a nurse on the unit for a half-day to experience the reality of the unit. In addition, CTCA had incorporated a peer interview process to

allow the candidates to have interaction with their potential peers. Thorough recruitment processes helped to identify the candidates who were the best fit for the unit. However, the in-depth recruitment process resulted in increased advertising and recruitment costs, as well as additional staff time and effort. In addition, the available pool of qualified candidates was smaller than candidate pools for traditional nursing units.

### Facilitators of Success

Preparing and educating nurses for the significant emotional energy required to provide nursing care on the AAU were important. Because the patient remains in one room, the nurse can experience all aspects of a patient's cancer journey. When patients are cared for by oncology nurses for an extended period of time, nurses can become very close to the patients and their families. When a patient dies, the amount of emotional energy needed to work through the patient-nurse relationship is significant. WRMC developed programs for staff to express their feelings and cope with the vast array of emotions generated when caring for patients with cancer throughout their illness trajectory.

Two internally developed programs found to be useful were Tea for the Soul and Caring Connections. Tea for the Soul is a program for staff members who cared for patients who died and offers a

way for staff to express their emotions and remember their relationship with the patient and the family. The program was facilitated by one of the counselors and CTCA's chaplain. The staff also created memory books as a result of this program. A memory book includes sentiments from the staff to the family of the deceased patient. The family can keep the memory book.

Caring Connections was developed to help staff with experiencing the death of a patient and learning how to mindfully respond to a patient's death. Other resources were developed to respond to patients' deaths, including

- Cards available in the chapel bookcases to write notes to the family and express sentiments. These cards can be brought to the family by one individual when the family is ready.
- Sensitivity training developed to help with ways to approach patients and families
- A quarterly memorial celebration, which provides an opportunity to celebrate patients and remember the improved quality of life they had at CTCA
- The chaplain's availability when staff members have questions, need support, or want to talk with someone about the loss of a patient.

Finally, an essential facilitator for CTCA success was team building. The AAU necessitated a team approach that required a balanced cadre of nurses who have varied clinical experiences and skill

**Table 1. Summary of Acuity Adaptable Unit Measurements**

Measurement	Definition	Result 1 (%)	Result 2 (%)	National Average (%)
Patient satisfaction	A measurement that obtains reports from patients about services and experiences from Cancer Treatment Centers of America®.	97	99	—
Medication errors	An incorrect or wrongful administration of a medication. This may include a mistake in dosage or route of administration.	1.4	1.35	5 <sup>a</sup>
Staff satisfaction (RN turnover)	A measurement to describe whether employees are happy and contented and fulfilling their desires and needs at work.	32.7	2	—

<sup>a</sup> Based on information from Kaushal et al., 2008.

*Note.* Result 1 was information obtained the Patient Satisfaction and Companion survey conducted from January 2009 to January 2010. Result 2 was information obtained from that survey from February 2010 to September 2010.



sets. Oncology nurses care for patients with a broad range of diagnoses and acuity levels; therefore, the care is quite complex. As a result, nurses with a variety of experiences encourage a professional environment of sharing one's expertise as well as teaching and mentoring opportunities for all nurses. A sample nurse profile would be one who has spent time working in an intensive care unit as well as an outpatient clinic or infusion center. This diverse background was found to have prepared the nurse to understand the patients on the unit and to remain better connected to them throughout their continuum of care.

## Oncology Nurse Education

Partnering with other healthcare providers is recommended when considering an AAU. CTCA has partnered with Arizona State University on a clinical preceptorship program, which has produced 12 graduates to date. In addition, CTCA is working on the development of advanced educational programs (RN to BSN, graduate programs, DNP programs, and undergraduate nursing programs).

**Clinical preceptorship program:** For the clinical preceptorship program, the education department developed and implemented plans for a unit-specific "onboarding" experience for AAU nurses. The program focuses on the first few weeks on the unit and helps the new nurse with a transition to the role. The specialized onboarding is intended to better acquaint the nurse with the uniqueness of the unit and answer challenging questions. This new preceptorship program, based on stakeholder

feedback, needs assessment, and best evidence, was piloted with one new full-time nurse with ongoing feedback to improve the orientation and initial experience for AAU nurses.

**Advanced educational programs:** Partnering with Arizona State University and Hospice of the Valley on the educational components of this project has been and continues to be a win-win for all institutions involved in the collaboration. The partnership of CTCA with Arizona State University and Hospice of the Valley on high-fidelity simulation is an exemplar of a practice-academic collaboration. Use of this expertise to teach critical knowledge and skills to oncology nurses has been invaluable in the development of the AAU. These partnerships have enabled CTCA to use the most up-to-date technology (e.g., high-fidelity simulation) and teaching methodologies (e.g., learning-management systems, established critical care and oncology courses, advanced nursing certifications) that may not have been used without these partnerships. It also has afforded CTCA access to educational training by skilled and experienced experts in areas that positively impact the treatment of the patient population in the areas of chronic pain management, palliative care, and mastery of communication.

## Conclusion

The implementation of an AAU at WRMC has required thoughtful planning and collaboration among oncology nurses. The nursing unit has been able to deliver better quality of care to patients with cancer and has reduced

some of the challenges that patients face while staying in a hospital. The unit has enhanced nursing leadership, education, and measurements. It has required CTCA to embark on new ways of thinking about and providing oncology care across the continuum. CTCA now has a better understanding of the processes and necessary steps for providing the best care to patients using this unique model. This pilot AAU implementation has provided guidance on the development of additional programs and the encouragement to explore best practices in AAU care.

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Digital Object Identifier: 10.1188/11.ONF.263-266

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