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Occupational Therapy in the Intensive Care Unit: A Quick Reference Guide

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OCCUPATIONAL THERAPY IN THE INTENSIVE CARE UNIT: A QUICK REFERENCE GUIDE

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ABSTRACT

Purpose: The purpose of this project was to create a quick reference guide for occupational therapists treating clients in the intensive care unit (ICU) in order to increase quality of care, decrease medical errors, and improve confidence.

Methods: A literature review was conducted to determine the needs of occupational therapists and other health professionals working in the ICU environment. It was discovered that occupational therapists do not receive specific education on treating clients in the ICU and that there are no specific resources for occupational therapists currently available. Rehabilitation is beginning sooner within the ICU in order to decrease client length of stay and hospital costs, which will in turn bring more occupational therapists to work in this area of practice. The increasing number of therapists working in this area, establishes a need for this product.

Results: Through the literature review and consultation with the University of North Dakota Simulation Center, a quick reference guide to occupational therapy within the ICU was created to provide occupational therapists with technical information about the person, the environment, and occupations within the ICU. The quick reference guide was designed through the guidance of Person-Environment-Occupation model.

Conclusions: In order to provide quality and client centered care within the ICU; it is pertinent for health professionals to have specialized knowledge and skills specific to this area of practice. Through research and personal experience, it was evident that occupational therapists and many health professionals do not feel confident treating

clients in the ICU. The limitations of this project include: the quick reference guide has not been piloted, the equipment is constantly advancing requiring the update of equipment in the guide frequently, and that it is not comprehensive and only provides the most relevant pieces of equipment to occupational therapy. Further recommendations for the quick reference guide include: implementing it into the University of North Dakota Occupational Therapy curriculum, use by fieldwork students, utilization by other health care professionals, and the adaptation of the guide for use by families.

CHAPTER 1

INTRODUCTION

Treating patients and working within the intensive care unit (ICU) can be a challenge for many occupational therapists that are new to the ICU setting. The authors were motivated to search for a comprehensive tool or reference to utilize within the ICU setting, however none was found. Throughout the search process, the authors noted the complexity of the ICU environment and the need for advanced training. Special training is critical in ensuring the satisfaction, safety, and effectiveness of occupational therapy intervention. Thus, the authors concluded the time for innovation was here.

The authors created a quick reference handbook for occupational therapists working in the ICU/Acute care. This product is intended to be utilized by therapists who are new to the ICU/Acute care setting. Additionally, the quick reference handbook is useful to students prior to a fieldwork rotation in physical disabilities. It can be used to assist with assessment, evaluation, communication, collaboration, complex equipment, and intervention that is appropriate in the ICU. This handbook is intended to increase the competence and confidence of the occupational therapist working in the ICU.

The authors utilized the Person-Environment-Occupation (PEO) model to guide the development of this handbook. The PEO model is categorized as an ecological model and focuses on the transactive interdependent relationship between the person, environment and occupation (Mallinson & Hammel, 2010). This comprehensive model assisted in organization, development, and completion of the quick reference handbook.

In the pages to follow, the reader will be able to review the current literature findings, methodology utilized, the product, and a summary of the overall process in creating this handbook.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The inspiration for this product came from the authors' personal experience. In order to provide occupational therapy treatment with special consideration of the various types of equipment and invasive lines that are commonly seen in the intensive care unit (ICU), the authors felt that it would be helpful to have access to a quick reference guide. While on fieldwork rotations, similar feelings were noted with experienced therapists. This motivated the authors to search for a tool or reference to utilize within the ICU setting, however none was found. As a result of the search process, the authors decided that the ICU is a complex environment and there is a need for special training for occupational therapists working in this area. Thus, the authors decided to create a guide to enhance the knowledge and resources for occupational therapists working with patients in the ICU.

Levels of Care

In order to understand the inner workings of an ICU, a person must first understand the basics of a hospital and the various levels of care. Hospitals are unique in the types of traumas addressed. According to Shafi et al., (2009), each hospital is verified at a particular level based on the resources that the hospital is able to deliver what is critical for ideal care. The purpose of this system is to improve the quality of care for patients (Shafi et al., 2009). The rating scale includes four levels: level I, II, III,

and IV.

A level I trauma hospital is the most equipped and advanced center. At a level I trauma center the staff and facility are competent in providing the most advanced care for the most critical patients. A level I trauma center has met extensive criteria to ensure all types of highly qualified health care providers in various types of health care fields are available within 30 minutes when needed (Joint Committee on Administrative Rules, 2001).

A Level II trauma center is equipped with similar services and resources as a level I trauma center. The main difference between a level I and level II trauma center is that a level I trauma center is considered a research and teaching facility (California Emergency Medical Service Authority, 2007). The goal of level III and IV trauma centers is to stabilize patients prior to transfer to a more equipped hospital. The differentiating factor between level III and level IV trauma centers is that level III trauma centers have surgical capabilities (California Emergency Medical Service Authority, 2007).

Each hospital or center is rated in regards to capabilities to care for traumas and, in addition, the levels of care vary. There are outpatient services in which a person arrives to see a health care provider and then leaves the same day. In transitional care facilities, a person's stay is typically between five and 21 days. In rehabilitation facilities, the length of stay varies depending on diagnosis, insurance, and rehabilitation potential. There are many different types of facilities and a wide range of care provided therefore the authors have determined to focus on one specific level of care, the intensive care unit.

Definition of the ICU

The ICU, also called the critical care unit (CCU), is a unit for individuals with life threatening illnesses and injuries requiring all-inclusive care. Some of the reasons for admittance to the ICU include but are not limited to: respiratory distress, cardiac issues, post-surgical complications, sepsis, and cerebral vascular accident (CVA) (Lucido Hillegass, 2012). Patients residing in the ICU receive constant supervision and attention by a diverse group of health professionals.

The number of clients in the ICU is increasing due to the Baby Boomer generation. In the next eight years the number of individuals requiring care in the ICU is expected to grow rapidly. Since high intensity medical care is provided in the ICU, the cost of having patients in the ICU is significantly more than the regular hospital unit. Therapies are starting to be brought into the acute and ICU settings more frequently to start the rehabilitation process and get patients out of the ICU quicker to decrease medical costs (Popovich, 2011).

Reasons for the high costs include, more staffing and intervention. Nurses working in the ICU may be responsible for only two patients at a time due to the critical status of many of the patients. The mortality rate of individuals in the ICU is 12-17 percent whereas; other hospital units average 1.5 percent mortality rates. Many of the patients may be on ventilators, numerous medications, and other monitoring equipment that requires acute attention by ICU staff (Popovich, 2011).

Environment of ICU

Medical care is specialized in the ICU, in that there are a number of monitors, intravenous tubes, feeding tubes, catheters, ventilators, and other machines and

equipment used (U.S. National Library of Medicine, 2010; Capuzzo, Moreno, Alvisi, 2010). The environment of the ICU is extremely technical and relies on technology to function. According to Merilainen, Kyngasb, & Ala-Kokkoc, (2010) the ICU is made up of three environments: physical, social, and symbolic.

The physical environment includes the patient's bed, room, and any equipment, tubes, monitors, lines, etc. This environment can be seen as stressful or a motivator for action or change. The social environment is made up of people, attitudes, norms, and institutions. Examples of the social environment are: the multidisciplinary team members who have direct contact with the patient, visitors, and family members. The symbolic environment is embedded within the physical environment. Examples of the symbolic environment include: values, ideas, beliefs, and knowledge (Merilainen, Kyngasb, & Ala-Kokkoc, 2010). The symbolic environment is represented in the routines followed by the medical staff each day. Merilainen, Kyngasb, and Ala-Kokkoc, (2010) also acknowledge a psychological environment in the intensive care unit. This is a personal and emotional environment that includes; feelings, experiences, thoughts, intelligence, personality, temper, and the self-confidence and stress level of the patient, family, and staff.

All of these environments have an impact on an individual in the ICU. Patients are hooked up to a number of unfamiliar devices, may experience many different people taking care of them, hear various noises and alarms, smell different things, and are exposed to many different lights. All of the aspects of the ICU are often novel and disrupting to patients, which in turn can cause physical and psychological stress. Patients may see the environment of the ICU as hostile and scary, which stresses the importance

of quality and client centered care by all disciplines to ensure these individuals feel as comfortable as possible (Merilainen, Kyngasb, & Ala-Kokkoc, 2010).

Admission Criteria

The ICU uses many expensive resources when treating patients, which creates high costs for patients admitted to this unit. Patients who have reversible conditions and are predicted to have a substantial recovery should be admitted to the ICU (Popovich, 2011). There are many different opinions on admission criteria to the ICU. Due to the differences in hospital size, structure, and function, there is no uniform policy to determine which patients should spend time in the ICU (Popovich, 2011). Some facilities rely on physician decision while others follow a model. Committees, specific guidelines, and policies are other formats used for admittance to the ICU (Egol et al., 1999). There is some risk to relying solely on physician decision due to different opinions and biases of individuals. Using a model to guide admission criteria sets a more specific and uniform process (Capuzzo, Moreno, Alvisi, 2010). Common models used include: the Prioritization Model, the Diagnosis Model, and the Objective Parameters Model.

The Priority Model determines which clients will benefit most from the ICU and which ones will not. This model is the most commonly used because it is based on patient benefit (Capuzzo, Moreno, & Alvisi, 2010). There are four priority levels. Level one includes patients who are unstable and need treatment that is not provided outside of the ICU. Priority level two considers patients who are at risk for needing intubation and mechanical ventilation. Patients of priority level three have an acute illness or disease with a grim outlook on recovery. Their acute illness will be treated, however, there will be limits set on treatment due to long term possibility of residing in the ICU. Patients

considered in priority level four are usually too well or too sick to benefit from the ICU. Patients who are too sick can be provided with comfort care on other wards of the hospital. Despite the model criteria or physician decision, patients experiencing brain death are admitted to the ICU at priority level one to ensure quality preservation of organs for potential transplant (Capuzzo, Moreno, & Alvisi, 2010).

The diagnosis model determines the severity of the patients' conditions and disease progression. Illness and disease are split into categories to determine which are appropriate for ICU admission under this model. Under the objective parameters model, objective information such as vital signs, laboratory results, and many other test results are considered. Regardless of the model or physician's decision, the determining factor of admitting a patient to the ICU is bed availability (Capuzzo, Moreno, & Alvisi, 2010).

Competencies of Medical Professionals Working in the ICU

Health professionals who work in the ICU need to be familiar with diagnoses, medication, machine functions, procedures, precautions, treatment protocols, stressful situations, a fast paced environment and much more. Knowing every detail of medications, diagnoses, or procedures may not be possible; however, it is important that health professionals know how to access resources that can assist them in learning this information. Much of medical practice is being guided by new research findings. It is crucial that individuals working in the ICU access and incorporate evidence-based practice to enhance the care of patients.

More than technical skills are needed to work in the ICU. In order to provide patients with the best care, it is crucial for healthcare professionals to work as a team and

know the roles and responsibilities of the individuals they are working closely with (Popovich, 2011). Some of the most common professionals working in the ICU include: intensivists, medical doctors, registered nurses, licensed practical nurses, licensed nurses aides, respiratory therapists, pharmacists, registered dieticians, physical therapists, occupational therapists, speech therapists and administrative support staff.

Intensivists are physicians who have obtained specialized experience to provide care in the ICU (Popovich, 2011). At many hospitals intensivists serve as the primary care doctor for patients and are oftentimes expected to be on call 24 hours per day because they direct care for all patients in the ICU. There is an increased possibility of costs being decreased and patient outcomes improved if intensivists are the sole manager of the patients' medical needs. When the intensivist is the manager, the ICU is considered to be a closed unit. Other ICUs may function as open units or co managed units. Open units allow the patient's primary doctor or surgeon to make clinical decisions for treatment. The co-managed unit is a mix between the open and closed unit where the intensivist and primary doctor collaborate and work together.

Nurses also work closely with patients in the ICU. The nurse's primary role is to be the health care provider that closely, consistently and constantly monitors medically fragile patients and responds as indicated. Many of them have specialty experience and may have the title of, critical care nurse, progressive care nurse, clinical nurse specialist, or nurse practitioner in acute and critical care (Popovich, 2011).

Since respiratory issues are common among patients in the ICU, respiratory therapists play a large role in treating patients in the ICU. They do not usually have special certifications as they work with patients in all areas of the hospital and a majority

of their schooling focuses on ventilator management specialties (Popovich, 2011). Even with the proper education, experience is necessary for respiratory therapists working in the ICU. They also work with clients to maximize lung capacity and decrease the risk of respiratory distress and ventilator induced pneumonia. Respiratory therapists aid in weaning patients off of the ventilator. They are trained to evaluate and implement treatment for individuals with a tracheostomy (Rozeboom, Parenteau, & Carratturo, 2012).

All of the patients in the ICU will be taking medications, which is why pharmacists are so important for clients care in the ICU. Their role is to provide medications and work with the intensivist to make decisions about which medications are best for the patient despite the side effects. Pharmacists are great resources for therapists who need to know information about medication side effects that could be affecting therapy.

Dieticians are another crucial part of the ICU team. They are responsible for making sure the patient's nutritional needs are met. Since many of the patients in the ICU are not capable of feeding themselves or swallowing food, the dietician will provide supplemental nutrition through a feeding tube (Popovich, 2011).

Physical, occupational, and speech therapists provide therapy for patients in the ICU. Physical therapists work with patients to improve mobility and begin movement even while still in bed. A physical therapist may be the one to get the patient out of bed for the first time following surgery or illness (Rozeboom, Parenteau, & Carratturo, 2012).

Speech-language pathologists, commonly referred to as speech therapists work in the ICU. Speech therapists work to evaluate and treat patients with

communication difficulties, cognitive deficits, and swallowing issues (United States Department of Labor, 2012). These skills are particularly crucial for when patients are beginning to eat and drink again after injury, illness, or receiving nutrition from another source. Occupational therapists may work closely with speech language pathologists to improve communication, cognition, and feeding and eating skills as well.

In the ICU, patients and families may find the presence of a hospital chaplain comforting. A hospital chaplain provides spiritual guidance for families and patients during difficult times (Loewy & Loewy, 2007). According to Loewy and Loewy (2007), chaplains are not always recognized as part of the healthcare team, however, chaplains can provide much needed support that may aid in keeping a patient and his/her family's inner drive and positivity going.

Medical consultants are individuals who have specialized experience in different areas. Since patients in the ICU have complex diagnoses, consultants will be brought in to provide more specialized care. Some medical consultants include: anesthesiologists, cardiologists, specialized surgeons, gastroenterologists, oncologists, nephrologists, pathologists, and urologists (Popovich, 2011).

Communication Among Professionals in the ICU

Many hospitals have team meetings to discuss client progress, which makes communication skills crucial. Each profession has a slightly different knowledge base, therefore working with patients in different ways. It is important for an individual from each profession to clearly and concisely communicate patient progress from a professional standpoint during team meetings. This helps everyone to get the most up to date information and discuss outcomes for the patient.

Communication in the ICU is also crucial among the team members when working with the patients. The importance of effective communication among healthcare professionals cannot be understated when it comes to the ICU. With the number of diverse individuals involved in the care of one person it is of the utmost importance to communicate effectively with one another to prevent medical errors.

According to Bromiley (2012), teamwork and team communication skills are vital to patient safety. Poor communication among healthcare professionals is the number one cause of mistakes in all medical settings (Rose, 2011). Rose (2011) suggests that having shared goals, partnerships, mutual respect, and power sharing help to improve interprofessional communication. The individuals working in the ICU have many different backgrounds of information and the key is to use all of the knowledge while working together. With the various shifts and employees of the hospital coming and leaving constantly, important information can become lost in translation. Ways to improve communication among shift change include: checklists, guidelines, and protocols (Rose, 2011).

Communication with the Patient and Family

Communication skills are not only important among medical professionals, but with the client and family as well. Many items and aspects of the ICU are novel to patients and their families, which may bring up many questions and uneasy feelings. As a provider it is crucial to respond with empathy and confidence to ensure that clients and families feel at ease. Before treating the client it is important to explain what is going to take place in terms that the patient and family understand. Education on procedures and validation of feelings helps the patient and family to be prepared and less frightened.

Families may wonder how long they should visit for, who can visit, why one doctor does something different than another, etc. It is important to sit down with the family and discuss tough situations. Let the family know that their loved one can hear and sense that they are there, that all doctors do things differently, that children should visit if they choose, and that they also do not need to feel that they should spend the entire day at the hospital (Park & Saunders, 1996).

Psychological factors also need to be taken into consideration with clients residing in the ICU. Many patients may have suffered severe and disabling accidents or illnesses. Due to the severity of patient conditions, many are put into a drug-induced coma. Contrary to most beliefs, this coma provides the patient with little rest. Hallucinations are common during this coma (Park & Saunders, 1996). Anxiety, depression, post-traumatic stress disorder, and denial are other common psychological diagnoses these clients may exhibit (Grap & McFretridge, 2012; Terry & Westcott, 2012). These patients will need extra support to stay motivated and keep moving forward in their recovery process. Health professionals working with these patients need to know how to keep patients motivated and address psychological factors when necessary.

Occupational Therapy in the ICU

Occupational therapy is a career that is diverse in many ways and qualifies therapists to work in a variety of healthcare practice areas. Since 1923, there has been an accreditation process that ensures standards for qualification (American Occupational Therapy Association, 2012). The American Council of Occupational Therapy Education (ACOTE) standards are in place to ensure that therapists graduating from accredited programs are ready for entry-level practice. These standards ensure that future patients

are provided with high quality care from knowledgeable individuals.

Occupational therapists are educated to assess and treat biological, psychological, and sociological factors of clients (Terry & Westcott, 2012). As a result, occupational therapists have a broad range of knowledge and have a role in a number of practice areas. There are many emerging practice areas for this profession, with the ICU being one of them. Occupational therapists have been working with patients in the ICU for many years, with the majority of patients being those who suffered burn injuries (Affleck, Lieberman, Polon, & Rohrkemper, 1986). Recently, rehabilitation has become a more familiar word in the ICU in general. There is now sufficient evidence to support the role and positive outcomes that mobilization and rehabilitation can have in the ICU (Rozeboom, Parenteau, & Carratturo, 2012). Starting rehabilitation in the ICU has shown to decrease hospital stays and prevent clients from experiencing generalized weakness. Patients were also found to be more alert and reported lower pain levels; therefore, they were given decreased amounts of benzodiazepines and narcotics (Needham et al., 2010).

Providing patients with early mobilization in the ICU has also shown to decrease the number of days patients require ventilation, decrease the risk of ventilator acquired pneumonia, lessen pressure ulcers, and an overall improvement of physical functioning (Bassett, Vollman, Brandwene, & Murray (2012). According to Lucido Hillegass (2012), a bed in the ICU costs $1,250.00 more per day than a bed in the general hospital. This is a significant amount of money that can be saved by providing rehabilitation in the ICU to speed up the process of recovery for the patients there.

Occupational therapists have the necessary skills and knowledge to be a part of

the multidisciplinary team of the ICU. They have many unique and evidence based ideas to enhance all aspects of care for patients in the ICU. Occupational therapists have the skills to create one of a kind splints to fit any patient's needs. They also focus on improving range of motion (ROM), stretching, positioning, bed mobility, improving sleep and rest, communication, feeding/eating, and much more. Occupational therapists can become certified in feeding, eating, and swallowing, which are applicable to the ICU because many patients have dysphagia (Popovich, 2011). Occupational therapists also focus on more than technical skills. A large portion of their schooling is focused on mental health and developing soft skills such as communication skills, compassion, interpersonal skills, listening skills, and patience.

The ICU and hospitals in general tend to be unwelcoming for patients and families (Park & Saunders, 1996). Many patients wake up terrified due to having a tube down their throat and being hooked up to a number of lines and tubes. This is why it is important for healthcare professionals to have confidence in what they are doing when working with a patient, and to know techniques to keep them calm and communicate about procedures.

Keeping a positive attitude and finding motivation is difficult for patients in the ICU. Many daily and meaningful activities may be tough to complete while in the ICU and with a new illness or disability. It is common for patients to lose motivation and have a tough time seeing the positives aspects. Occupational therapists have experience with motivational interviewing for these reasons. Motivational interviewing is a skill that therapists use to ask open-ended questions and to draw out how they can best assist the client. Research has found that therapy in the ICU can enable clients to have a more

positive mood and outlook on their future (Lucido Hillegass, 2012).

It is evident that quite frequently patients in the ICU may not have the ability to communicate due to ventilation or other complications. In order to use motivational interviewing techniques and communicate, occupational therapists may have to use their knowledge of adaptive equipment and assistive technology to improve the communication process. This can be an advantage to all healthcare providers in the ICU, especially the nurses that work with patients for the majority of the time. According to Radke, Tate, and Happ (2012), nurses do not receive training on communication techniques for patients who are unable to communicate verbally. They usually learn from each other or by using trial and error (Radke, Tate, Happ, 2012).

Interventions that can be used with patients who are unable to communicate verbally include: using a whiteboard to write messages on, create signals for yes and no answers, create a picture board for the patient to point to, or use an eye gaze communication board for patients that have severe motor impairments (Radke, Tate, Happ, 2012). The iPad is another popular device with a number of applications for use with communication. It is important to take into consideration the patient's cognitive, attention, alertness, and motivation levels when choosing a communication device (Radke, Baumann, Garrett, & Happ, 2011). There are many ways to communicate non-verbally, however it is up to the healthcare professional which process works best with the patient.

Due to the increase of therapy services being provided to clients in the ICU, many advances are being made. Devices are being created to enable clients on ventilators to ambulate as well as implementing many novel interventions into the ICU

setting (Needham et al. 2010). Occupational therapists can play a large role in creating and using these specialized devices.

According to Affleck, Liegerman, Polon, and Rohrkemper (1986), it is extremely important that an occupational therapist have knowledge of invasive lines including the precautions necessary, the purpose, and the various locations they may be placed. This knowledge is necessary in order to provide safe and effective treatment to the patient. If an occupational therapist does not possess the adequate amount of knowledge it can result in injury to the patient. The injury can be physical but also psychological if the event is traumatizing to the patient or family.

Not only is it crucial to know about invasive lines but also additional equipment that may be utilized in the ICU. Pohlman et al. (2010), indicated that an occupational therapist should have the understanding of mechanical ventilation in order to start the therapeutic process as soon as possible. Beginning therapeutic mobility is pertinent in order to decrease the odds of ICU weakness and readmission, however a barrier to beginning therapeutic mobility is a therapist's knowledge of equipment and resources (Bassett, Vollman, Brandwene, & Murray, 2012). According to Bassett, Vollman, Brandwene, and Murray (2012), a number of ICU health care providers lack the necessary resources and knowledge to effectively and safely incorporate early rehabilitation into daily practice in the ICU.

Therapists need to learn to work around equipment and invasive lines as well as the patient's medical stability (Bassett et al., 2012). At any point a patient's medical status can plummet and therapists need to be ready to quickly respond to the situation at hand. The response time of the therapist can mean the difference between life and

death. Bassett et al. (2012), stated that a barrier to ICU practice is the unpredictability of the patient's physiological status. This is why it is important for therapists to be educated on the functions of machines and technology in the ICU as well as precautions and warning signs to watch for.

Having a fieldwork placement in the ICU could help to facilitate a therapist's knowledge and skills to care for a patient with invasive lines, equipment, and varying medical status. A fieldwork in any setting will target the necessary communication skills that will correlate with the ICU team approach. As part of the fieldwork process a student needs to learn to integrate him/herself into the social and professional environment of any setting. This skill can be generalized and utilized in an ICU setting. Lorin, Rho, Wisnivesky, and Meirman (2006), assert that practicing communication skills can improve outcomes for future use. Once a student has gained practice with integration into a team approach and communicating with patients he/she also gains confidence in the clinical setting.

Since the occupational therapy curriculum targets a broad range of skills that are useful in all settings, occupational therapy students need to complete additional research and academic preparation prior to specific fieldwork or employment settings (Jensen & Daniel, 2010). While participating in fieldwork a student needs to take the time to continuously research evidence based practice in order to enhance their skills for the specific area of practice they are working in (Hansen, Gundersen, & Bjorna, 2011). Many times students can provide co-workers and supervisors with the newest evidence based practice information.

A student who completes a fieldwork in an acute or inpatient rehabilitation

setting may gain basic technical skills that they would be able to build upon and utilize if working in the ICU in the future. Students will still need to complete additional preparation prior to beginning a fieldwork because much of the curriculum is focused on client centered and occupation based activities verses technical skills needed for clinical use (Jensen & Daniel, 2010). Therefore, completing a fieldwork in the ICU would be beneficial to future employment opportunities in all settings due to the technical skills and knowledge gained. Students are encouraged to incorporate theory in order to guide treatment sessions. This is an area that is vigorously studied throughout the curriculum.

Theoretical Guidance for the Occupational Therapy Process

The Person-Environment-Occupation (PEO) model provides an excellent framework to guide the therapeutic process within the ICU. The PEO model is categorized as an ecological model and focuses on the transactive interdependent relationship between the person, environment and occupation (Mallinson & Hammel, 2010). Strong et al., (1999), demonstrate the use of the PEO model with a variety of diagnoses and settings, indicating how this model can be used for a multitude of scenarios. Through the use of the PEO model, the therapist is guided during assessment, intervention, and follow up. These services include a strong client-therapist alliance (Strong et al., 1999). Within the PEO model the therapist is able to focus on ways to support performance rather than focus on the problem (Strong et al., 1999). This is an important aspect for treating individuals in the ICU due to patients having numerous areas to focus on. For the patient, his/her family, and health care providers working together in the ICU, this positive approach is beneficial for everyones' well being.

According to Broome, Mckenna, Fleming, and Worrall (2009), each situation needs to be analyzed in two ways. The first one is by looking at the person, the environment and the occupation. The second is to analyze the person, environment, and occupation in the form of the interdependent relationship that exists between the three factors.

Person

The person aspect takes into consideration the four categories: physical, affective, cognitive and spiritual (Strong & Bruhl, 2011). In relation to a patient admitted to the ICU, physical aspects may determine the course of treatment. Physical traits may relate to the injuries or illness sustained and the effect these traits have on a person's physical abilities, such as, muscular control and movement.

Occupational therapists receive extensive education in anatomy, neuroscience, and physiology in order to understand the inner workings of the human body. Education includes details of neurological effects and in depth neuroscience information, exploration of how a muscle works, where it attaches, and what movements the muscle initiates. Through course work, knowledge is gained about the body systems and the impacts they have on each other. The end result of extensive academic course work is a comprehensive understanding of the human body. This comprehensive understanding provides an occupational therapist with the ability to assess the physical aspects of a person. The Occupational Therapy Practice Framework: Domain and Process also supports that occupational therapists have the skills to evaluate a multitude of client factors that make up the body functions and structures of the person (American

Occupational Therapy Association, 2008).

Affect is influential in therapy due to how the patient's feelings and attitudes impact participation and determination levels to recover. Terry and Westcott (2012) articulate the importance of psychological well being alongside additional medical conditions. Occupational therapists are uniquely trained in treatment for both psychological and physical illnesses. This is part of the holistic treatment approach that occupational therapists have to offer.

The cognition of a patient determines a certain level of involvement and approach the therapist takes in the therapy process. If a patient has a cognitive deficit, this may alter how the therapist educates and provides instructions throughout therapy. Within the ICU setting, cognition may vary on an hourly basis due to the medical status and medications the patient is receiving. It is important for an occupational therapist be able to assess cognitive levels of function to creatively provide interventions at the patient's level. As described in the Occupational Therapy Practice Framework: Domain and Process there are many performance skills that occupational therapists are skilled to assess and analyze in regards to cognitive capacities of individuals.

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important for an occupational therapist to assess, analyze, and address in order to understand whom the patient is as a person and his/her unique characteristics.

Environment

The environment consists of four categories: cultural, institutional, physical and social (Strong & Bruhl, 2011). Part of treating a person holistically is taking into account a patient and his/her family's distinctive cultural background. According to Like (2011), health care disparities can be reduced by training health care professionals appropriately about cultural competency. The Occupational Therapy Practice Framework: Domain and Process specifically addresses the need to look at the person's context including the cultural context (American Occupational Therapy Association, 2008). Through formal education as well as collaboration with the patient, occupational therapists can serve a diverse range of patients in a creative and respectful manner in order to increase quality of care in the ICU.

The physical environment of the ICU includes the equipment, machines, invasive lines, lighting sounds, and smells. All of the physical aspects have the potential to be either a barrier or a support to a patient care. Occupational therapists have the skills to critically analyze the environment and adapt it to be a support rather than inhibit the healing/rehabilitation process.

The social environment within the ICU includes the people and interactions that occur. For a patient this may include a variety of factors. It may be as simple as holding hands with family members or being cared for by a diverse group of healthcare professionals. Social interactions do not fall within the typical means due to many reasons, one of which is limitation in visiting hours within the ICU. Prior to

injury/illness a person might typically be interacting with people continuously whereas within the ICU visiting hours may limit interactions with family and/or friends. The social environment also includes communication between healthcare providers and the family of the patient. The social interaction between the family and health care provider is crucial in that the health care provider needs to educate, communicate with, and help the family to feel at ease. The social environment may be what the family needs to remain calm during an intimidating and stressful time. Another example of social interaction is the interaction that occurs among the healthcare team. This social interaction helps to form a cohesive relationship between team members, which is something that patients and families can sense and is necessary to provide quality care to patients.

The institutional environment within the ICU relates to the guidelines implemented by the hospital at large. This may include proper protocol for evaluation, treatment, documentation and discharge. The institutional environment can direct care of patients and implement the vision and mission statements that drive staff to provide quality care.

Occupation

Occupations are defined as the various activities and tasks that a person engages in to fulfill necessary roles (Strong & Bruhl, 2011). Occupational therapists have extensive training in preparatory, purposeful, and occupation based intervention strategies, which facilitates the use of appropriate interventions within the ICU (American Occupational Therapy Association, 2008). Additionally, occupational therapists have activity analysis skills in order to adapt interventions based on the

patient's level of function (AOTA, 2008). The majority of occupation-based interventions taking place in the ICU will include activities of daily living (ADLs), rest/sleep, and communication.

With the guidance of the PEO model, occupational therapists can critically analyze the person, environment and occupation as well as the transactional relationship between the three factors. These three elements of the PEO model are incorporated in the handbook through informational pages regarding equipment, communication skills, areas of occupation, interventions, and precautions to take. The ICU is a specialized area of practice in which a therapist would benefit from additional resources and training, therefore, the aim of this quick reference handbook is to provide a comprehensive resource for therapists or students beginning to work in an ICU setting.

CHAPTER III

METHODOLOGY

The authors' chose to complete an in depth literature review as well as an analysis of current resources to determine the need for a quick reference guide for occupational therapists or students working with patients in the intensive care unit (ICU). The authors completed a journal article search using the University of North Dakota's Harley French Library of Health Sciences. A summary was written on each article to organize and obtain the most pertinent information. Textbooks and reference books from the Harley French Library were also used. Specialized books on the ICU were requested through an interlibrary loan.

The journal articles and textbooks provided information on various professional roles in the ICU, areas of occupation for occupational therapists to focus on, various pieces of equipment used in the ICU, assessments to use with patients, and communication devices and tips to use when working with the patient and family. The occupation based model, Person Environment Occupation (PEO) was utilized to guide the organization of this quick reference guide. It is split into three sections: Person, Occupations, and Environment of the ICU. The Person section includes information on assessment, vital signs, and lab values. The Occupation section includes communication tips for the patient and the family, benefits of communication with the patient, communication devices, rest and sleep, activities of daily living, and feeding and eating. The Environment section includes the communication with core disciplines and various

pieces of equipment and invasive lines.

Occupational therapists are educated to assess and treat biological, psychological, and sociological factors of clients (Terry & Westcott, 2012). This is why occupational therapists have a broad range of knowledge and have a role in a number of practice areas. In accordance with this information, charts on assessments, lab values, and vital signs are included in the "Person" section of the quick reference guide, to help the occupational therapist working in the ICU to choose the assessments that are best for the patient and assist in treatment planning.

Occupational therapists have the skills to create one of a kind splints to fit any patient's needs. They also focus on improving range of motion (ROM), stretching, positioning, bed mobility, improving sleep and rest, communication, feeding/eating, and much more. Occupational therapists can also become specially certified in feeding, eating, and swallowing which is applicable to the ICU because many patients have dysphagia, which means they have difficulties with swallowing (Popovich, 2011). Charts including occupations for activities of daily living, feeding and eating, and sleep and rest interventions are included in the "Occupations" section of the quick reference handbook.

Communication is another area of occupation that occupational therapists focus on within the ICU. The ICU and hospitals in general tend to be unwelcoming for patients and families (Park & Saunders, 1996). Many patients wake up terrified due to having a tube down their throat and being hooked up to a number of lines and tubes. This is why it is important for healthcare professionals to have confidence in what they are doing when working with a patient, and to know techniques to keep them calm and communicate about procedures. Enabling the patient to communicate with family and health

professionals is also a crucial part of recovery, therefore a number of communication devices have been included in the quick reference guide. Tips for communicating with the family and patient are also included.

Through the review of articles and textbooks, the roles of health professionals working in ICU were analyzed in comparison to the occupational therapist's role. The importance of effective communication among healthcare professionals cannot be understated when it comes to the ICU. With the number of diverse individuals involved in the care of one person it is of the utmost importance to communicate effectively with one another to prevent medical errors.

According to Bromiley (2012), teamwork and team communication skills are vital to patient safety. Poor communication among healthcare professionals is the number one cause of mistakes in all medical settings (Rose, 2011). Rose (2011) suggests that having shared goals, partnerships, mutual respect, and power sharing help to improve interprofessional communication. The individuals working in the ICU have many different backgrounds of information and the key is to use all of the knowledge while working together. To ensure that occupational therapists know the roles of the individuals they are working closely with and the most important information to relay, a chart of the core disciplines roles and their foci are included in the quick reference guide.

Occupational therapists do not receive formal education on the specific environment of the ICU, however knowing the equipment used with patients is pertinent when providing treatment in this area of practice. Medical care is specialized in the ICU, in that there are a number of monitors, intravenous tubes, feeding tubes, catheters, ventilators, and other machines and equipment used (Capuzzo, Moreno, Alvisi,

2010). The environment of the ICU is extremely technical and relies on technology to function. To supplement the therapists' knowledge and improve confidence when working with patients in the ICU, the quick reference guide includes informational pages and pictures on popular machines and invasive lines seen in the ICU setting. The pictures for these machines and lines were obtained through pictures taken personally by the authors at the University of North Dakota's Simulation Center.

CHAPTERIV

PRODUCT

Treating patients and working in the intensive care unit (ICU) can be a challenge for many occupational therapists that are new to the ICU setting. The authors were motivated to search for a comprehensive tool or reference to utilize within the ICU setting, however none was found. Throughout the search process, the authors noted the complexity of the ICU setting and the need to be specially trained. Special training is critical in ensuring the satisfaction, safety and effectiveness of occupational therapy intervention. Thus, the authors concluded the need for a reference for occupational therapists.

The authors created a quick reference handbook for occupational therapists working in the ICU. This product is intended to be utilized by therapists who are new to the ICU setting. Additionally, the quick reference handbook is useful to students prior to or during a fieldwork rotation in the physical disabilities setting. It can be used to assist with assessment, evaluation, communication, collaboration, complex equipment, and intervention that is appropriate in the ICU. It would be beneficial for occupational therapists to have access to this handbook in order to increase competence and confidence when working in the ICU.

Throughout this extensive process, the authors utilized the Person-Environment-Occupation (PEO) model to guide the development of the quick reference guide. The PEO model is categorized as an ecological model and focuses on the transactive

interdependent relationship between the person, environment and occupation (Mallinson & Hammel, 2010). Strong et al., (1999), demonstrated the use of the PEO model with a variety of diagnoses and settings, indicating how this model can be used for a multitude of scenarios. The PEO model provides therapists with guidance through assessment, intervention, and follow up. The theory of PEO also integrates a strong client-therapist alliance (Strong et al., 1999). Within the PEO model the therapist is able to focus on ways to support performance rather than focusing on the problem (Strong et al., 1999). This is an important aspect for treating individuals in the ICU due to the numerous areas of focus when working with patients.

According to Broome, Mckenna, Fleming, and Worrall (2009), each situation needs to be analyzed in two ways. The first is by looking at the person, the environment and the occupation. The second is to analyze the person, environment, and occupation in the form of the interdependent relationship that exists between the three factors. This comprehensive model assisted in the organization, development and completion of the quick reference handbook in which an occupational therapist can utilize to provide the highest quality of care. Please refer to the Appendix to view the quick reference guide.

Chapter V

Summary

There is a need for resources to support the transition of occupational therapists into the specialized and technically demanding practice setting of the ICU. The purpose of the "Occupational Therapy in the Intensive Care Unit: A Quick Reference Guide" is to assist occupational therapists that are new to the ICU setting. Through the use of this product, a therapist will demonstrate increased confidence and knowledge when treating patients within the ICU.

The exploration of current literature supported the development and creation of this product. The Person-Environment-Occupation model provided guidance and an organizational format for the product. First addressed in the product is the person, this is thoroughly explored through an assessment table including all aspects of the person: affect, cognition, physical and spiritual. The second aspect addressed is occupation. Occupation is covered through various charts addressing communication, activities of daily living, feeding/eating, and rest and sleep. The third area that is addressed is the environment. This includes a chart covering the institutional, social and cultural aspects of the health care team in the ICU. The physical aspect of the environment is covered through information pages of various equipment and invasive lines used in the ICU that may impact the therapeutic process.

There are limitations to "Occupational Therapy in the Intensive Care Unit: A Quick Reference Guide."

The first limitation is that this product has not been piloted in the ICU setting. Another limitation is that it only includes the most relevant equipment and invasive lines. There are a number of items in the ICU environment that could be included, however, the authors chose the most popular and relevant items for occupational therapists. Medical equipment is also continually updated. The photos of equipment included in this quick reference guide may become outdated over time, however will still provide sufficient information and an introduction for therapists. To eliminate these limitations it is recommended that the product be piloted by therapists in the ICU and then adapted according to feedback received or outcome measures employed.

The quick reference guide could be integrated into the occupational therapy curriculum for a couple of different classes. The medical science and physical disabilities classes could integrate the information in the quick reference guide into discussion and learning of diagnoses and illnesses, which require care in the ICU and acute settings. This product could also be incorporated into the ICU units of hospitals and used for integrating entry-level therapists or students into the ICU setting. Also, a program plan was created to implement a mentorship program into the ICU setting, which incorporated the quick reference guide of this project.

Through the research of this project, the authors discovered that a number of ICU health care providers lack the necessary resources and knowledge (Bassett, Vollman, & Brandwene, 2012). It was concluded that this quick reference guide has the potential to provide increased confidence and quality of care provided by therapists treating patients in the ICU. The product could also be helpful to fieldwork students who are completing

a rotation in the ICU. It could also be helpful to other members of the health care team due to the diverse information included in the product.

Further recommendations for this project include, creating a version of the product for the patient's family to utilize. The product could also be expanded further and should be updated on a yearly basis in order to provide the most up to date information for therapists. This product will be presented at Frank Low Research Day in the spring of 2013. It is possible that the authors may choose to showcase their work at the American Occupational Therapy Association Conference in the upcoming years as well.

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Occupational Therapy in the Intensive Care Unit: A Quick Reference Guide

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Master's of Occupational Therapy Program

Table of Contents

Introduction to the Product

Treating patients and working in the intensive care unit (ICU) can be a challenge for many occupational therapists that are new to the ICU setting. The authors were motivated to search for a comprehensive tool or reference to utilize within the ICU setting, however none was found. Throughout the search process, the authors noted the complexity of the ICU setting and the need to be specially trained. Special training is critical in ensuring the satisfaction, safety, and effectiveness of occupational therapy intervention. Thus, the authors concluded the need for a reference for occupational therapists.

The authors created this quick reference handbook for occupational therapists in the ICU. This product is intended to be utilized by therapists who are new to the ICU setting. Additionally, the quick reference handbook is useful to students prior to or during a fieldwork rotation in the physical disabilities setting. The quick reference guide can be used to assist with assessment, evaluation, communication, collaboration, complex equipment, and intervention that is appropriate in the ICU. A therapist should have access to a handbook or quick reference guide in order to increase competence and confidence when working in the ICU.

Throughout this extensive process, the authors utilized the Person-Environment-Occupation (PEO) model to guide the development of this tool. The PEO model is categorized as an ecological model and focuses on the transactive and interdependent relationship between the person, environment and occupation (Mallinson & Hammel, 2010). Strong et al., (1999), demonstrated the use of the PEO model with a variety of diagnoses and settings, indicating how this model can be used for a multitude of

scenarios. The PEO model provides therapists with guidance through assessment, intervention, and follow up. The theory of PEO also integrates a strong client-therapist alliance (Strong et al., 1999). Within the PEO model the therapist is able to focus on ways to support performance rather than focus solely on the problem (Strong et al., 1999). This is an important aspect for treating individuals in the ICU due to the numerous areas of focus when working with these patients. For the patient, family, and health care providers working together in the ICU, this positive approach is beneficial for everyone's well being.

According to Broome, Mckenna, Fleming, and Worrall (2009), each situation needs to be analyzed in two ways. The first is by looking at the person, the environment, and the occupation individually. The second is to analyze the person, environment, and occupation in the form of the interdependent relationship that exists between the three factors. This comprehensive model assisted in the organization, development, and completion of the quick reference handbook in which an occupational therapist can utilize to provide the highest quality of care. In the pages to follow the reader will be able to view resources that are appropriate for this complex setting.

Person

The person is the first of the three aspects of the transactive interdependent relationship of the PEO model. The person aspect takes into consideration the four categories: physical, affective, cognitive, and spiritual (Strong & Bruhl, 2011). These four categories are addressed in order to aid an occupational therapist in analyzing all

aspects of the patient. Through the consideration of the four categories of the person, a therapist will gain a full and complete understanding of each patient.

Assessment

This chart is intended as a way to guide therapists in choosing an appropriate assessment depending upon the information the therapist hopes to gain, the time allotted, and the aspects of the person. As indicated by the Person-Environment-Occupation (PEO) model the person is made up of four parts: physical, affective, cognitive and spiritual (Strong & Bruhl, 2011). The Assessment chart identifies which area of the person each assessment will analyze.

The physical aspects of each patient in the ICU will have a significant impact on the course of treatment. Physical traits of the person may relate to the injuries or illness sustained and the effect it has on a person's physical abilities, such as, muscular control and movement. Occupational therapists receive extensive education in anatomy, neuroscience, and physiology in order to understand the inner workings of the human body. This comprehensive understanding provides an occupational therapist with the ability to assess the physical aspects of a person. The Occupational Therapy Practice Framework: Domain and Process also supports that occupational therapists have the skills to evaluate a multitude of client factors that make up the body functions and structures of the person (American Occupational Therapy Association, 2008).

The affective aspect of an individual is influential in therapy due to how the patient's feelings and attitudes impact participation and determination in recovery. Terry and Westcott (2012) articulate the importance of psychological well being alongside additional medical conditions. Occupational therapists are uniquely trained in treatment

for both psychological and physical illnesses, which is part of the holistic treatment approach that occupational therapists have to offer.

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Spirituality may be the source of an individual's inner drive and is a key contextual factor that contributes to the makeup of a person (American Occupational Therapy Association, 2008). Many patients in the ICU may lack an inner drive, which can negatively impact therapeutic progress. Spirituality means something different to everyone, however during a medically unstable time, spirituality may be the one thing keeping the patient and his or her family in a positive state. All four aspects of the person are important for an occupational therapist to assess, analyze, and address in order to understand who the patient is as a person and his or her unique characteristics.

Vital Signs

This chart is intended to be a way for the occupational therapist to compare the patient's vital signs to the normal values. This chart correlates with the physical aspect of the person, as it assesses functions of the body systems. Vital signs can enable a

therapist to indicate whether it is safe to continue therapy or if there is a need to adapt or stop therapeutic interventions.

Lab Values

This chart is intended for the occupational therapist to compare a patient's lab values to normative values. It indicates precautions that are deemed necessary when abnormal values are present. This chart may be used as a quick reference when minimal time is available for research.

Assessment

Assessment	Purpose	Area of person addressed	Time
Behavioral Assessment Scale of Oral Functions in Feeding	Oral motor/feeding evaluation in order to determine clients' skills and deficits. It also helps to determine treatment enables the therapist to determine change in function.	Physical	Not specified
Performance Assessment of Self-Care Skills 3.1 (PASS)	Gathers data on daily living skills. Provides a baseline of the patient's functional status, serves as an outcome measure and enables the therapist to determine treatment plans and the amount of assistance to provide.	Physical	Dependent on subtests performed
Discomfort Scale	Observation assessment that measures discomfort in patients without the requirement of a verbal response, also determines change or improvement over time.	Affect	5-15 minutes
FACES Pain Scale-Revised	Simple form for rating levels of pain after trauma, surgical procedures, or disease. The patient points to the face that best matches his/her pain level.	Affect	5-10 minutes
Cognitive Linguistic Quick Test	Quick screening that obtains information on cognitive-linguistic function: attention, memory, language, executive function, and visual spatial skills. Used with adults who have neurological dysfunction.	Cognitive	15-30 minutes
JFK Coma Recovery Scale-Revised (CRS-R)	Characterize and monitor levels of consciousness in individuals with functions in Rancho Levels I-IV	Cognitive	15 minutes
Mini Mental State Examination (MMSE)	Short and simple measure of mental status.	Cognitive	5-10 minutes
Short Portable Mental Status Questionnaire (SPMSQ)	Oral questionnaire that provides a brief, simple, and reliable detection of cognitive and intellectual impairment. Great for patients that are not capable of complex testing.	Cognitive	5-10 minutes
Beck Hopelessness Scale	True-false questionnaire that measures hopelessness, including negative attitudes for the future, loss of motivation, and expectations.	Spirituality, affect	5-10 minutes
Rosenberg Self-Esteem Scale (SES)	Likert self-rating scale that provides a quick and simple measure of one's positive and negative attitudes toward abilities and accomplishments.	Spirituality, affect	Less than 10 minutes

Asher, I. E. (Ed.). (2007). *Occupational therapy assessment tools: An annotated index* (3rd ed.). Bethesda, MD: AOTA Press.

Vital Signs

	Normal	Abnormal
Blood Pressure	Systolic: 90-120 mm Hg Diastolic: 60-80 mm Hg	Hypotension: systolic <90 Stage 1 hypertension: 140-159/90
Heart Rate	60-100 beats per minute	<60: Bradycardia >100: Tachycardia
Cerebral Perfusion Pressure	Above 70 mm Hg	<50-70 mm Hg indicates poor outcomes for TBI
Mean Arterial Pressure	70—110mm Hg	
Intracranial Pressure	Below 20 mm Hg	Check chart or discuss levels with physician
Respiratory Rate	12-20 breaths per minute	
Oxygen Saturation (SaO2)	95-100%	Below 90%

Lab Values

	Purpose	Normal	Precautions
Partial Pressure of Oxygen (PaO2)	The pressure of O2 that is dissolved in the blood	80-95mm Hg	
Partial Pressure of Carbon Dioxide (PaCo2)	The amount of CO2 dissolved in the blood and how efficient CO2 is able to move out of the body	34-45 mm Hg	Hypercapnia is a high PaCO2 reading and causes acidosis
pH	The amount of Hydrogen (H+) ions in the blood	7.35-7.45	<7.35= acidosis >7.45= alkalosis
Bicarbonate (HCO3)	Keeps blood pH from becoming too acidic	18-23 mEq/L	>23 mEq/L indicates CO2 retention
Blood Urea Nitrogen (BUN)	Kidney function	Male: 8-24 mg/dL Female: 6-21 mg/dL	A high BUN level may indicate that kidneys are not working properly. A low BUN level can indicate liver damage.
Glucose	Blood sugar	100-250 mg	<60 mg: poor exercise tolerance

Popovich, K. (2011). The intensive care unit. In H. Smith-Gabai (Ed.), *Occupational Therapy in Acute Care* (pp.41-73). Bethesda, MD: American Occupational Therapy Association.

Environment

The PEO model continues to guide the occupational therapist process in the ICU, with the final aspect to address being the environment. The environment consists of four categories: cultural, institutional, physical, and social (Strong & Bruhl, 2011). The following sections address all four categories in relation to occupational therapy in the ICU.

Communication With Core Disciplines

The institutional environment within the ICU relates to the guidelines implemented by the hospital at large. This may include proper protocol for evaluation, treatment, documentation, and discharge. The institutional environment can direct the care of patients and implement the vision and mission statements that drive staff to provide quality care. The Communication with Core Disciples chart addresses which professionals carry out which roles.

Part of the environment includes the social interactions that occur within that particular environment. A healthy social environment within the ICU helps to form a cohesive relationship between team members. This is something that patients and families can sense and is necessary to provide quality care to patients.

Within the ICU setting there is a culture that exists among the team. By understanding team members' roles, a person can then better understand the team culture and improve communication with one another. The Communication with Core Disciplines chart provides information on a number of the professional roles in the ICU.

Equipment and Invasive Lines

The physical environment of the ICU includes the equipment, machines, invasive lines, lighting sounds, and smells. All of the physical aspects have the potential to be either a barrier or a support to patient care. Occupational therapists have the skills to

critically analyze the environment and adapt it to be a support rather than inhibit the recovery and rehabilitation process. Part of being able to adapt to the physical environment and proceed with therapy includes understanding the equipment, machines, and invasive lines. This section is intended to be a resource for technical skills related to the physical environment of the ICU. Each page contains the name of the piece of equipment, medical purpose, location, precautions, and implications for occupational therapy. An occupational therapist can quickly reference pieces of equipment prior to therapeutic intervention to ensure he/she is confident in treating that patient safely.

Communication With Core Disciplines

CORE DICIPLINES IN THE ICU	ROLE	IMPORTANT DETAILS FOR AN OCCUPATIONAL THERAPIST TO COMMUNICATE
Intensivist	Physicians with specialized credentials to work in an ICU as the primary care provider and head of the health care team	-Monumental changes in patient status -Monumental increase or decrease in the healing process -Patterns in treatment -Response to therapy -Sores/wounds/infection/swelling -Patient/family concerns or questions
Nurse	Closely, consistently and constantly monitor medical status of patients and respond as indicated	-Change in blood pressure -Change in respiration -Change in symptomology -Patient response to medications -Pain levels -Energy/fatigue -Sores/wounds/infection/swelling -Improvements in independence --Patient/family concerns or questions
Respiratory Therapist	Work to maximize lung capacity and decrease risk of respiratory distress and illness	-Change in respiration during therapy -Change in oxygen saturation levels -Ventilator function status -Excess coughing or difficult with respiration during therapy -Patient/family concerns or questions
Pharmacist	Determine appropriate medications taking into account combinations and side effects	-Side effects patient may be experiencing -Response to medication changes -Patient/family concerns or questions -Pain levels
Dieticians	Ensuring the patient's nutritional needs are met	-Feeding tube function -Patient energy levels in relation to amount of nutritional intake -Patient/family concerns or questions
Physical Therapist	Work to improve mobility	-Pain levels -Energy/fatigue -sleeping patterns -physical limitations -Patient/family concerns or questions
Speech Language Pathologist	Evaluate and treat patients with communication difficulty, cognition, and swallowing issues	-Changes in cognitive status -Effective means of communication -Noted observations of swallowing -Patient/family concerns or questions
Chaplain	Provide spiritual guidance	-Motivating factors -spiritual preferences -culture, tradition, and beliefs of patient -Patient/family concerns or questions

Arterial Catheter

Medical Purpose

An arterial catheter, also referred to as an art-line or a-line, is inserted directly into an artery. This is typically used for the purposes of arterial blood gas measurements and anesthesia medications.

Typical Location

The most common location is into the radial artery in the wrist. Additional locations include: the brachial artery in the elbow, the femoral artery in the groin, and the dorsalis pedis artery in the foot.

Precautions

- Keep the dressing clean and dry.
- Do not pull on tubing.
- Do not allow tubing to kink during movements.
- Do not remove tubing from the bed side monitoring system.

Implications for Occupational Therapy

At the end of therapy be sure to place patient in the position you found him/her to facilitate optimal wave forms for arterial blood gas measurements.

Do not perform range of motion exercises at the joint where the arterial catheter is placed, it may kink or dislodge the tubing.

Reference

Shaffer, B. R. (2011). Arterial Catheter Insertion (Assist), Care and Removal. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 534-547). St. Louis, MO: Elsevier Saunders.

Bispectral Index Monitor

Medical Purpose

This monitor is used to assess level of consciousness in adults. It also detects responses to sedatives, hypnotic, and anesthetic agents. This monitoring system may also show responses to a stimulus, specifically painful stimuli.

Typical Location

One portion of the monitor is placed across the patient's forehead, with the other portion of the monitor placed at the bedside.

Precautions

- Seek help if the BIS value drops significantly during therapy.
- Increase in BIS: if the patient detects noise, is shivering, during REM sleep, and if there is potential seizure activity.
- Decrease in BIS: Excessive sedatives, deep sleep, onset of neurologic injury, or hypothermia.

Implications for Occupational Therapy

Knowing what the values mean can help to plan the therapy session.

The BIS values are from 0-100.

100: Awake state, patient can respond to verbal stimulation

80: Patient may respond to loud verbal stimulus, has decreased tactile stimulation

60: Patient is not responsive to verbal stimulation, not able to recall events, names etc.

40: Deep hypnotic state, drug induced coma, becoming less responsive to physical stimulation

20: Very little response to any stimuli

0: No response of brain function however spinal reflexes may be present

Reference

Richard, B. (2011). Arbour bispectral index monitoring. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 775-791). St. Louis, MO: Elsevier Saunders.

BiPAP & CPAP

Medical Purpose

These machines are non-invasive and provide positive pressure ventilation through a facemask, nasal mask, or pillows. The goal is to prevent obstruction of the airway while the patient is sleeping, to improve oxygen intake, improve ventilation, and provide respiratory muscle rest.

Typical Location

Face

Precautions

- The masks can leak. If you think the mask is leaking, find someone who knows how to replace the mask properly.
- Asses patient for signs of pneumothorax: elevated chest
- Do not remove, this machine is often times an alternative to a ventilator
- Know where the manual self-inflating resuscitation bag is located in case of necessary use

Implications for Occupational Therapy

Monitor the patient for symptoms of respiratory distress.

Assess skin integrity under the mask.

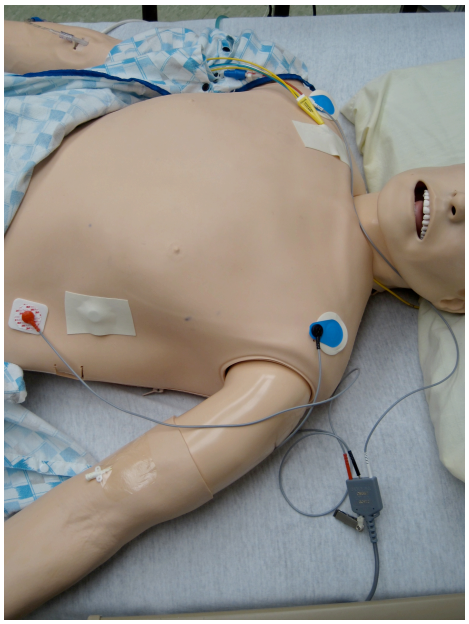
Check the patient's chart or with the respiratory therapist for therapy contraindications.

Reference

Burns, S. M. (2011). Non-invasive positive pressure ventilation: Continuous positive airway pressure (CPAP) and BiLevel positive airway pressure (BiPAP). In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 225-234). St. Louis, MO: Elsevier Saunders.

Cardiac Monitor

Medical Purpose



The device that monitors the heart is called an electrocardiogram. It allows the heart's electrical activity to be continuously displayed on a bedside monitor.

Typical Location

The patient will have 3-5 pads on his/her chest that are connected to wires which are connected to the machine at the patient's bedside.

Precaution

- There is a standardized placement of the chest pads, therefore if one falls off, ask a nurse or physician to assist you in placing it back on the chest correctly.

Implications for Occupational Therapy

Be mindful of the leads to the bedside monitor.

If the leads are an issue for therapy, it is an option to ask if the patient could use an EASI Lead system or Phillips Monitoring System instead. This is a small monitor connected to the leads that fits in the front pocket of a shirt or gown, or could lay on the bed next to the patient. It could allow for more movement.

Know that an upward spike means that an electrical impulse of the heart flowed toward the positive electrode, if it spikes downward, an electrical impulse was toward the negative electrode and a downward spike is produced.

Reference

McKinley, M. G. (2011). Electrocardiographic leads and cardiac monitoring. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 490-501). St. Louis, MO: Elsevier Saunders.

Centrifugal Apheresis

Medical Purpose

This machine removes cells, plasma and other substances from the blood. It is typically used to treat antibody mediated disorders.

Typical Location

Typically an IV is inserted into each arm. One IV carries the blood to the machine while the other caries the blood components back into the body from the machine.

Precautions

- Do not lift heavy object for at least 24 hours
- If needle sites begin to bleed, raise arms above patients head and apply light pressure
- Bandages will be in place over needle sites, do not remove or get these wet for at least four hours after treatment

Implications for Occupational Therapy

Patient may be fatigued for 1-2 days after a procedure, take this into account during intervention.

Patients may experience nausea and lightheadedness, watch for this during intervention.

Overall, for the day of the procedure and day after focus treatment on less strenuous activities.

References

Astle, S. M. (2011). Apheresis and therapeutic plasma exchange. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 1070-1078). St. Louis, MO: Elsevier Saunders.

University of Rochester Medical Center. (2012). What is Apheresis? Retrieved from http://www.urmc.rochester.edu/cancercenter/patientfamilies/cancertreatment/Apheresis/index.cfm

Cervical Traction

Medical Purpose

The patient is immobilized and on complete bed rest on what is called The Kinetic Treatment Table. The patient remains in traction until healed or obtains an orthosis, however, the bed does move side to side to allow pressure relief.

Typical Location

The patient will have a device that is connected to his or head or neck. This device is connected to cords or pulleys which keep traction on the neck.

Precautions

- Never disconnect traction
- Never move the weights
- Check precautions prior to moving the patient

Implications for Occupational Therapy

Occupational therapists may see patients on cervical traction to assess many aspects such as:

Pressure ulcer formation

Neurologic assessment: muscle strength, dermatome levels, reflexes, sensory function

Pain

Splinting or Orthoses

Calming activities

Reference

Hanson, M. (2011). Cervical traction maintenance. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 908-914). St. Louis, MO: Elsevier Saunders.

Crash Cart

Medical Purpose

A crash cart contains a variety of equipment, tools and medications necessary during life threatening emergencies.

Typical Location

Due to the strong medications stored within a crash cart, the crash cart is required to be kept in a secure location designated by the sections of the hospital.

Precautions

- If a patient goes into cardiac/respiratory arrest during therapy the majority of hospitals have a number to dial into the phone that will activate the code system and response. KNOW THIS NUMBER

Implications for Occupational Therapy

As therapists have the hospital code system memorized, the most common code for life threatening emergencies is “code blue” however this may vary depending upon the hospital. During a code blue, a therapist can help direct visitors to clear the hall ways and/or the patient’s room in order to let the response team in.

List of Typical code systems

RED - Fire
BLUE - Cardiac/Respiratory Arrest
PINK - Infant/Child Abduction
BLACK - Bomb
ORANGE – Hazardous materials/Bioterrorism
GREY - Violence/Security Alert
WHITE - Hostage
YELLOW - Lockdown
GREEN - Mass Casualty/Disaster
BROWN - Severe Weather

Reference

Queensland Health (2007). Code blue manual retrieved from: http://www.sasvrc.qld.gov.au/SASVRC/Assets/Documents/code_blue_0207.pdf

Dialysis Catheter and Monitor

Medical Purpose

To move blood into the machine/monitor to filter the blood to remove toxins and return back to the body. Dialysis is used when the patient's kidneys are not working properly.

Typical Location

A dialysis catheter is most commonly found at the subclavian vein near the patient's shoulder, the jugular vein in the neck, or the femoral vein in the groin.

Precautions

- Monitor the patient's blood pressure.
- Watch for bleeding
- Watch for symptoms of a collapsed lung

Implications for Occupational Therapy

Make sure the patient is comfortably positioned during dialysis.

Find meaningful occupations to complete during dialysis because it can be long and painful.

The catheter can be easily moved out of position, plan therapy accordingly.

Reference

ICU-UA. (2004). Dialysis catheter. Retrieved from *http://www.icuusa.com/tour/equipment/dialysis_cath.htm*

Gastrostomy and Nasogastric Tubes

Medical Purpose

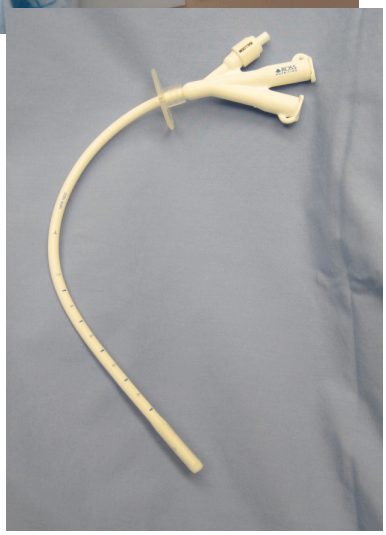
Gastrostomy tubes provide long term access to the patient's gastrointestinal tract for nutritional content. Nasogastric Tubes are more temporary and carry food and medicine to the stomach.

Typical Location

Gastrostomy tubes are located in the abdomen. Nasogastric tubes are inserted through the nose and into the stomach.

Precautions

- Gastrostomy: Check insertion site for infection, redness, edema, pain, tenderness, and if the patient has symptoms of a fever.
- Nasogastric: check skin around nostrils for irritation from tube



Implication for Occupational Therapy

Gastrostomy: cover the tube site with dressings and a protective cover during positioning, movement, stretching, etc. Make sure the patient does not roll onto the insertion site, the tube can be easily dislodged.

Check for signs of aspiration.

Patient may feel nauseated, thus impacting treatment.

Nasogastric: do not let patient pull, find a way to secure the tube during therapy sessions.

References

Ecklund. M. M. (2011). Percutaneous endoscopic gastrostomy, gastrostomy, and jejunostomy tube care. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 1201-1205). St. Louis, MO: Elsevier Saunders.

National Institute of Health (2012). Nasogastric feeding tube. Retrieved from http://www.nlm.nih.gov/medlineplus/ency/patientinstructions/000182.htm

Infusion Pump

Medical Purpose

Delivers controlled amounts of medication or nutrients to a patient. It can be set up on intervals or the patient can press a button to release more medication.

Typical Location

Through an IV in the hand or arm. There are also enteral infusion pumps that deliver fluids or nutrients to patients' digestive tract.

Precautions

- Software problems: an error message means that the pump may not be operating.
- These devices are known to have issues with the battery, be sure to monitor the machine and if it is working properly.

Implication for Occupational Therapy

Work around lines to be sure that they do not become disconnected and the patient receives necessary fluids, nutrition, or medication.

Reference

U.S. Food and Drug Administration. (2010). What is an infusion pump? http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/GeneralHospitalDevicesandSupplies/InfusionPumps/ucm202495.htm

Intraaortic Balloon Pump

Medical Purpose

To increase coronary artery perfusion, increase systemic perfusion, decrease myocardial workload, and minimize afterload.

Typical Location

The descending thoracic aorta, below the left subclavian and above the renal artery. It is inserted through the femoral artery or through a transthoracic approach.

Precautions

- Check metabolic equivalent of task (MET) levels and physical activity levels with physician or by chart review, also check for universal protocol requirements in the chart.

Implications for Occupational Therapy

Recognize the QRS complex on the ECG to observe the patient's heart pattern.

Only raise the head of the bed slightly to prevent orthostatic hypotension.

Do not bend the leg that the pump is inserted in to ensure proper placement and continual effect.

Monitor insertion site for bleeding or other abnormal symptoms.

Used in individuals with the diagnoses of a severe heart attack, heart muscle weakness (cardiomyopathy), and individuals waiting for a heart transplant.

Reference

Castellucci, D. (2011). Intraaortic balloon pump management. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 443-463). St. Louis, MO: Elsevier Saunders.

Intracranial Pressure Monitor

Medical Purpose

Allows external ventricular drainage of cerebrospinal fluid while monitoring intracranial pressure. It can measure pressure and drain fluid both intermittently or constantly.

Typical Location

External auditory canal

Precautions

- Under drainage of cerebral spinal fluid (CSF) signs include: headache, neurologic deterioration, hydrocephalus, increased intracranial pressure (ICP), secondary neuronal injury, or herniation.
- CSF over drainage includes: headache, subdural hematoma, pnemocephalus, ventricular collapse, herniation.
- The catheter that is inserted into the ear is easily displaced or may break after five days if precaution is not used.

Implications for Occupational Therapy

Normal ICP range is from 0-15 Hg, if the patient sustains a reading of 20 Hg, it is considered an emergency.

Used with diagnoses of traumatic brain injury (TBI), intracranial hemorrhage, aneurysmal subarachnoid hemorrhage, hydrocephalus, ischemic stroke with edema, meningitis, and cysts.

Positioning is an intervention that occupational therapy can help with for patients who have increased ICP.

Reference

Slazinski, T. (2011). Combination intraventricular/fiberoptic catheter insertion (assist), monitoring, nursing care, troubleshooting, and removal. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 809-815). St. Louis, MO: Elsevier Saunders.

Isolation Care Cart

Medical Purpose

An isolation care cart holds necessary materials to maintain a safe environment for the patient, staff and visitors. The cart will typically hold gloves, gowns, face masks, hair nets, shoe covers, and antibacterial wipes.

Typical Location

The cart is typically located in what is referred to as an anit room. This room is before you enter the patients room and will usually include a sink. If the isolation care cart is not in an anit room it may be placed outside the patients room.

Precautions

- Carefully read the precautions to determine if anything can be brought into the room or if any materials can exit the room. Most often at least one of these is prohibited if not both.
- Precautions are in place to protect all individuals involved, be sure to follow them strictly in order to remain safe and to keep those around you safe.

Implications for Occupational Therapy

For evaluation purposes, be sure to take thorough mental notes as it will be prohibited to bring notes into and out of the therapy room
For intervention purposes, get creative and utilize resources within the room to make interventions as occupation based as possible
Be sure that family and visitors are educated on proper isolation precautions
Familiarize yourself with the specific reason the patient is in isolation and how infection spreads.

Reference

Utah Department of Human Services (2004.) Utah state hospital infection control policy and procedure. Retrieved from http://hspolicy.utah.gov/files/ush/USH%20Policy%20Manual/Infection%20Control.pdf

Mechanical Ventilation

Medical Purpose

Provides the force and pathway needed to move air into and out of the lungs.

Typical Location

There are three types of ventilation. One is a mask that is noninvasive. Second is a flexible tube inserted through the mouth down past the vocal cords and into the trachea. The third is the most invasive which is inserted directly into the trachea from an incision made on the anterior neck.

Precautions

- Do not remove tape from tubing, this tape secures the tube in place and decreases the risk of inadvertent extubation.
- A bite-block may be inserted into the patient mouth, do not remove this, it prevents the patient form biting down on the endotracheal tube.
- If breath sounds become absent, decreased, or unequal notify nursing immediately.

Implications for Occupational Therapy

If during the course of therapy the tube position moves from the original location notify nursing immediately.
Watch for skin break down around locations that the tube applies pressure to skin.
Therapy may increase secretions and the need for suctioning, collaborate with nursing to determine appropriate suction action.
Patient and family will be extremely nervous about maintaining the safe ventilation, be sure to explain interventions completed in therapy sessions.
If washing a patient's face during therapy, be sure mechanical ventilation tubing and equipment remains dry.
Nursing will take on the role of oral hygiene; however occupational therapist may assist in the process for future care.

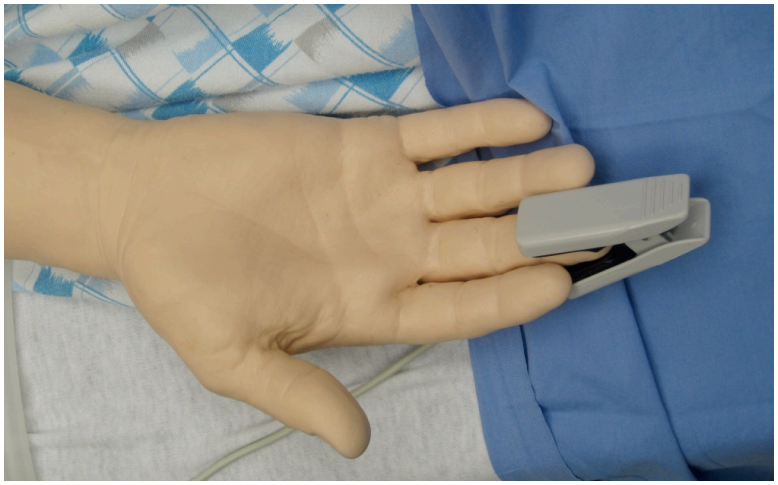
Reference

Goodrich, C. A. (2011). Endotracheal Intubation (Perform). In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 9-21). St. Louis, MO: Elsevier Saunders.

Pulse Oximetry

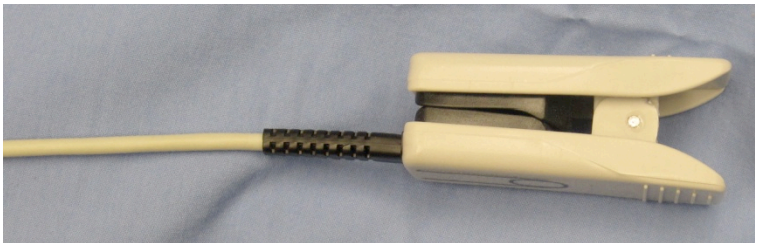
Medical Purpose

This is a noninvasive system to monitor arterial oxygen saturation of hemoglobin. This is commonly noted as SPO2 in charting and on monitors. There are two main categories of sensors including a wrap and a clip.



Typical Location

The clip sensors are appropriate to utilize on the fingers (not thumb) and ear lobe.
The wrap sensors are appropriate to utilize on the thumb, great toe, and nose.



Precautions

- Normal SPO2 is 97-99%, typically when SPO2 level falls below 90%, a patient may require medical intervention such as oxygen or encouragement to take deep breaths.
- Nail bed discoloration may impact an accurate reading

Implications for Occupational Therapy

SPO2 levels will vary depending upon activity level and patient exertion. A patient's SPO2 status should be monitored throughout therapy.

If SPO2 levels fall below 90%, encourage the patient to take deep breaths and have him/her sit or lie down.

Reference

Schultz, S. L. (2011). Oxygen saturation monitoring with pulse oximetry. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 121-128). St. Louis, MO: Elsevier Saunders.

Soft Restraints

Medical Purpose

Restraints are used to protect the patient from themselves as well as to protect staff and visitors. Patients may experience reflexive or combative movements that may jeopardize the use of other vital equipment such as a ventilator and the safety of health professionals or the patient.

Typical Location

Restraints can be placed in various locations depending upon patient needs. Some of the most popular placement sites are around the wrists and/or ankles and across the abdomen

Precautions

- Be sure to follow instructions indicated by the physician on proper wearing routine.
- Before removing restraints, ready yourself and the environment for possible reactions of the patient.

Implications for Occupational Therapy

If restraints are to be worn 24/7, check daily for tissue break down of the skin.
Speak with the physician to see if there are conditions to remove restraints during therapy.
If permission is given to remove restraints for therapy, ready yourself and the environment for potential risks.

-Clear objects and equipment that could be potentially harmful.
-Position yourself in a way to protect you and the patient; this may indicate holding the patient's forearm when removing wrist restraints.
-Have additional staff in the room for assistance.

Reference

Louisiana State University Health Sciences Center (2011). Restraints In. Hospital Policy Manual, Policy number 5.15 retrieved from http://www.sh.lsuhsc.edu/policies/policy_manuals_via_ms_word/hospital_policy/h_5.15.0.pdf

Suction of Endotracheal or Tracheostomy Tubes

Medical Purpose

To keep the airway open, improve gas exchange, lessen airway resistance, and decrease the risk of infection.

Typical Location

Within the endotracheal or tracheostomy tube.

Precautions

- Only provide suctioning when necessary and if competent in the process.
- Monitor heart rate and blood pressure during suction.
- Patient may experience pain and anxiety.

Implications for Occupational Therapy

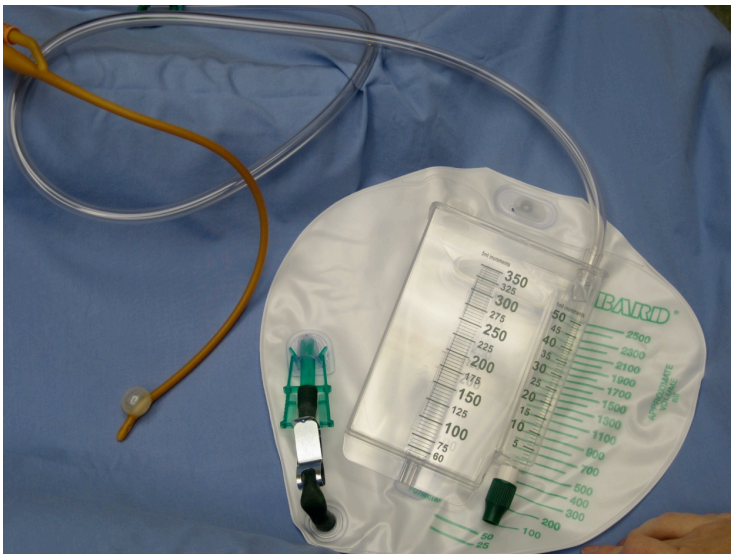
Suctioning may be necessary when the patient exhibits signs of:

- Increased respiratory rate
- Coughing
- Decrease in PaO2, SaO2, or Spo2 levels
- Sudden respiratory distress
- Suspected aspiration

Reference

Chulay, M., Seckel, M. A. (2011). Suctioning: Endotracheal or Tracheostomy Tube. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 79-87). St. Louis, MO: Elsevier Saunders.

Urinary Catheter



Medical Purpose

The main purpose is to drain urine from the bladder into a collection bag. The collection bag allows health care providers to monitor fluid volume, color, and clarity of urine.

Typical Location

A urinary catheter is passed through the urethra and into the bladder, this is commonly called an indwelling catheter. If necessary, the catheter can be placed directly into the bladder through a small hole in the belly. A condom catheter is placed over the penis rather than having a tube inserted into the penis, then drains into a collection bag. This is used in patients who are at risk of pulling out the indwelling catheter.

Precautions

- Do not pull on catheter
- Do not instruct patient to perform range of motion that might comprise or pull on catheter
- Keep clean
- Do not kink catheter
- Always keep catheter below patients waist to ensure urine does not reenter patient

Implications for Occupational Therapy

The length of the tubing that leads to the collection bag varies, regardless of length be sure the bag is securely attached to the patient's leg before movement occurs.

For bowel care, be sure that the area remains clean, this may mean double checking genital hygiene.

Catheters that are in place long term can lead to urinary tract infections (UTI), therefore a therapist should be consciously aware of patients behaviors that may indicate a UTI.

Reference

Vorvick, L. J. & Liou, L. S. (2011). Urinary catheters. Retrieved from http://www.nlm.nih.gov/medlineplus/ency/article/003981.htm

Vacuum-Assisted Closure System For Wounds

Medical Purpose

The purpose of a Vacuum-Assisted Closure System is to apply a controlled negative pressure to the wound. This opens arterioles which increases the effectiveness of local circulation facilitating tissue granulation and edema reduction which then enhances the wound healing process. This process is often referred to as negative pressure wound therapy. The system typically consists of an occlusive wound dressing, tubing, a powered vacuum and a collection canister.

Typical Location

Location is solely based upon specific wound locations.

Precautions

- Be aware of the location of tubing, intense pressure from tubing may result in tissue breakage especially over bony prominences.
- Do not pull on tubing
- Dressing should be collapsed when seal is appropriately maintained, watch for a raised foam dressing. Typically an alarm will sound if negative pressure is lost.
- Monitor color of drainage in canister-report if rapid filling occurs or blood begins to pool.
- Monitor for signs of infection.

Implications for Occupational Therapy

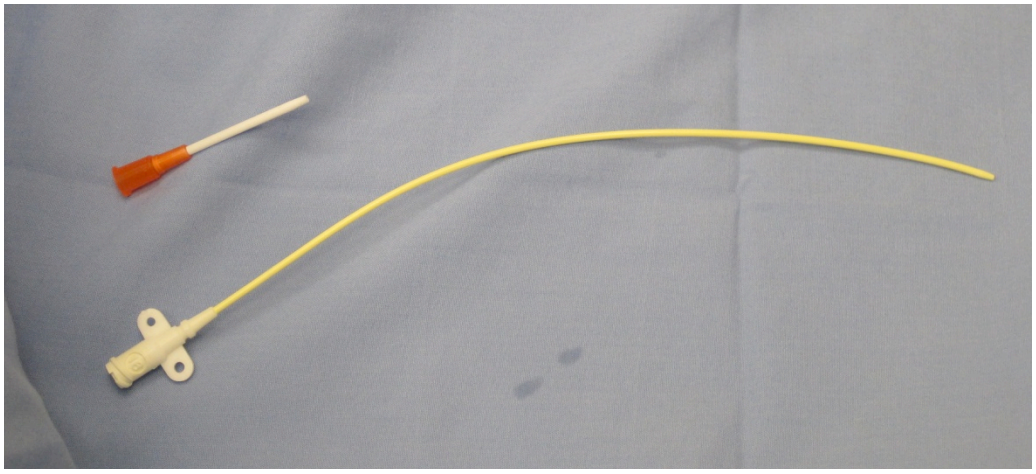
During therapy, do not have the patient complete movements that may jeopardize the airtight seal of the dressing.

Be constantly aware of the location of the tubing to ensure the safety of the patient. Tubing can get caught under the patient, on the bed, and/or wheelchair.

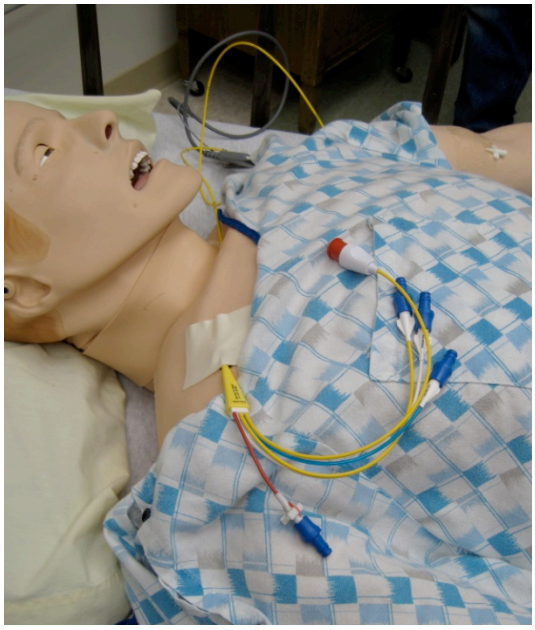
Monitor wound and drainage daily in order to document/report any changes.

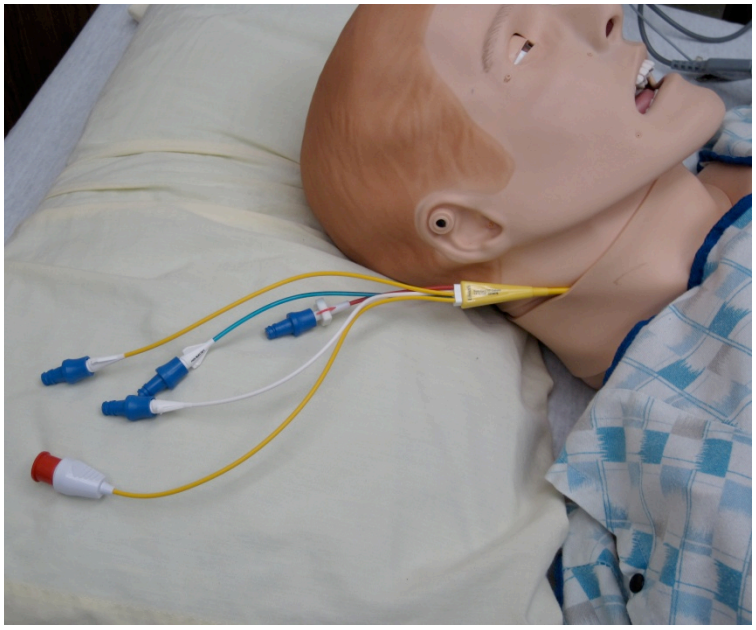
Reference

Gipp, P. (2011). Negative-Pressure Wound Therapy. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 1166-1171). St. Louis, MO: Elsevier Saunders.



Regular IV (red) compared to venous catheter (yellow)





Swanz-ganz catheter

Peripherally inserted central catheter

Venous Catheter

Medical Purpose

A venous catheter is often referred to as a central line. It is a thin flexible tube that is utilized to give medicines, fluids, nutrients and or blood components quickly and directly to the patient. Typically, these catheters are intended to be used for longer durations of time. A specialized form of a venous catheter is a swanz-ganz which has multiple ports.

Typical Location

The catheter may be inserted into the arm, chest, or neck. When it is inserted into the arm it is typically referred to as a peripherally inserted central catheter (PICC). A swanz-ganz catheter is typically inserted into the jugular vein or the subclavian vein and is then threaded through the heart and continues into the arteriole system.

Precautions

- Keep dressing clean and dry.
- Do not pull on tubing.
- Do not allow tubing to kink during movements.

Implications for Occupational Therapy

Do not complete range of motion exercises that may jeopardize the tubing.

During any version of bathing, grooming, or hygiene, ensure catheter cite remains sterile and dry.

Patient may be hesitant to move the area where venous catheter is inserted, be sensitive to this apprehension.

If a patient is unconscious, verbalize every movement to decrease anxiety of movement and equipment.

Reference

Press, T. & Wiegand, D. L. (2011). Central Venous Catheter Removal. In D. Wiegand (Eds.), *Procedure Manual for Critical Care* (pp. 595-602). St. Louis, MO: Elsevier Saunders.

Occupations

Occupations are defined as the various activities and tasks that a person engages in to fulfill necessary roles (Strong & Bruhl, 2011). Occupational therapists have extensive training in preparatory, purposeful, and occupation based intervention strategies, which facilitate the use of appropriate interventions within the ICU (American Occupational Therapy Association, 2008). Additionally, occupational therapists have skills in activity analysis in order to adapt interventions based on the patient's level of function (American Occupational Therapy Association, 2008). The majority of occupation-based interventions taking place in the ICU will include activities of daily living (ADLs), rest/sleep, and communication.

Communication Tips for Patient and Family

Communication skills are not only important among medical professionals, but with the client and family as well. Many items and aspects of the ICU are novel to patients and their families, which may bring up many questions and uneasy feelings. As a provider, it is crucial to respond with empathy and confidence to ensure that clients and families feel at ease. Before treating the client it is important to explain what is going to take place in terms that the patient and family can understand. Education on procedures and validation of feelings helps the patient and family to be prepared and less frightened. It is important to sit down with the family and discuss these tough situations. Let them know that their loved one can hear and sense that they are there, that all doctors do things differently, that children should visit if they choose, and that they also do not need to feel that they should spend the entire day at the hospital (Park & Saunders, 1996).

This section is intended to enable a therapist to smoothly communicate with the patient and family in the ICU setting. This is an extremely difficult time for the patient and family and appropriate communication can make a significant difference by helping the family to feel at ease during a stressful time. This page provides a number of tips to keep in mind when communicating with both the patient and the family.

Overall Benefits of Communication from the Patient

This page is intended to provide information regarding the importance of patients having the ability to communicate with others while in the ICU. There are many benefits of the patient's ability to communicate that will ease the stress of his or her stay in the ICU. By working towards communication abilities, a therapist can improve patients' satisfaction with the care provided due to the patient having the ability to express his or her wants, needs and desires.

Communication Devices

It has been indicated how important it is for the patient to be able to communicate with family and medical professionals while in the ICU, therefore, the communication devices chart is a way to guide interventions that aid in facilitating communication. Listed with each device is the intended purpose, necessary skills, advantages and disadvantages. After assessing a patient's skills, an occupational therapist can determine the appropriate form of communication based on the predicted outcomes and goals of the patient. All of these devices are intended for use with an individual who is unable to verbally communicate. An occupational therapist may collaborate with a speech language pathologist as well as an assistive technology specialist to determine what means of communication is most appropriate. It is important to learn how to

correctly use the device prior to teaching the patient. Oftentimes cognition is difficult to assess and trial and error may be necessary in choosing a device. Ultimately, when a device is chosen, it provides many benefits to the patient, his or her family, and the health care team.

Rest & Sleep

Patients in the ICU are often hooked up to a number of unfamiliar devices, may experience many different people taking care of them, hear various noises and alarms, take in different smells, and are exposed to many different lights. All of the aspects of the ICU are often novel and disrupting to patients, which in turn can cause physical and psychological stress. This causes patients to see the environment of the ICU as hostile and scary. Due to this aspect of the environment, the importance of quality and client centered care is to be displayed by all disciplines to ensure these individuals feel as comfortable as possible (Merilainen, Kyngasb, and Ala-Kokkoc, 2010).

These environmental factors disrupt the patient's ability to sleep and rest, both of which are crucial to the healing and recovery process. The Rest & Sleep chart is intended as a resource for occupational therapists to utilize in order to make the ICU environment more peaceful. It also includes techniques to help facilitate rest and sleep. Any adaptation an occupational therapist makes to the ICU environment should be communicated with the rest of the care team and family.

Activities of Daily Living

The ICU setting can make implementing meaningful occupations difficult. The Activities of Daily Living chart is intended to be a guide for meaningful occupations that can be carried out within the intense setting of the ICU. Included in the chart are necessary materials, performance skills required, and precautions to consider when carrying out occupations. With the critical activity analysis skills and adaptation abilities that occupational therapist have, meaningful occupations can still be incorporated into treatment within the ICU. Meaningful occupations can in turn help to motivate the patient and improve recovery.

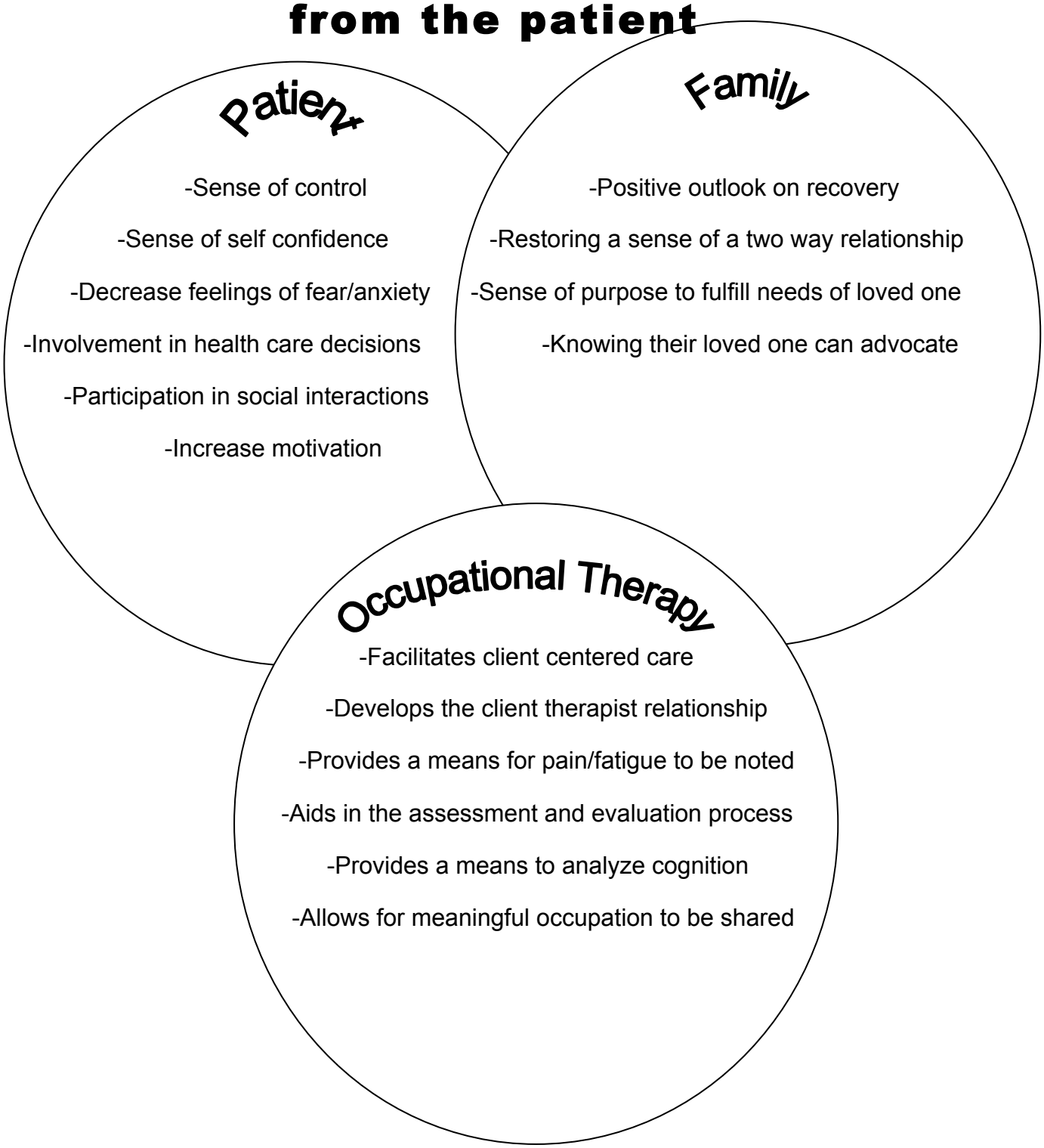
Feeding and Eating

Feeding and eating can also help increase motivation and independence. It is common within the ICU that patients are limited to specific forms of food. Located in the Dysphasia Diet: Levels of Food chart are various textures of food that patients may be limited to. The Dysphasia Diet: Levels of Liquids chart includes various textures of liquids, a description, and examples. As a therapist it is important to review the patient's chart for the level of foods and liquids he or she is allowed to have. These charts will be useful when considering feeding/eating as an intervention.

Communication Tips for Patient and Family

- Provide clear and concise education on procedures, possible side effects, and behaviors
    - Hallucinations, use of restraints, goals of therapy
- Validate feelings
- Provide ways to relieve stress and calming strategies
    - Example: leave hospital room for periods of time
- Show empathy
- Provide suggestions on how to interact with their loved one
    - Examples: holding hands, using communication devices, things to say
- Help them to feel that they do not need to stay at the patient's bedside all day
- Encourage loved one's children to visit
- Provide ways to prepare children to visit a parent or grandparent in the ICU
- Encourage them to bring items from home to create a welcoming environment for the patient. (check on restrictions)
- Mention that therapists, doctors, and nurses may all do things a bit differently but that does not mean that it is wrong.
- Be sure to respect the family's privacy.

Overall Benefits of Communication from the patient



Communication Devices

Device	Purpose	Skills	Advantages	Disadvantages
Dana	Electronic notebook	Cognitive abilities to sequence Fine motor abilities to type Visual abilities to view screen and keys	Light weight and portable	Takes higher functioning levels Involves training
Boardmaker	Therapist creates picture/word charts that patient can utilize	Vision Ability to point or indicate yes/no to specific pictures	Simple means to communicate Can be used by all disciplines	Takes therapist time to make outside of treatment time. Must purchase boardmaker software
Link	Verbalizes words that are typed into key pad.	-Cognitive abilities to operate and sequence steps -fine motor skills to type in words -visual abilities to view screen and keys	Comes with a quick reference card that facilitates easy use. Allows for advanced communication.	Takes higher cognitive functioning levels, involves training.
Big Mac Step by Step Chipper	Allows for a message or several messages to be recorded and then played back by touching the device.	-Ability to manually push a large button with body part. -Must have some level of arousal and awareness for use. -Comprehend cause and effect	Easy to set up and use. Light weight and portable.	Must have location to place it, which can be difficult in the ICU.
Super Talker	The patient presses a specific section on a picture grid that has a preprogrammed phrase.	-ability to press grid with a body part -Must have some level of arousal and awareness for use -Comprehend cause and effect	Allows for multiple common phrases. Can be done in words, graphics or icons depending upon cognitive needs of the patient.	Takes therapist time to create a specific grid for the patient
iphone/ ipad	Multiple ways for communication to occur through typing,	-Vision -Input method: voice activation or touch screen -Comprehend cause and effect	Can be adapted for use with various cognitive abilities. Light weight and portable.	Glitches in technology. Wireless access may be required.

	graphics, apps etc.	-Must have some level of arousal for use	Universal design	

Rest & Sleep

Environmental Assessment & Interventions	Therapeutic Changes	Benefits
Lighting	Dim lights, eye mask, turn off overhead lights	Decreased sensory impact, decreased headaches
Noise	Noise cancelling headphones, soft earplugs, doors closed, recommend visitors during certain times	changes in heart rate, increased BP, decreased breath rate, decreased adrenaline levels
Pressure Relief	Splinting, positioning, recommendation of air mattress overlay	Comfort, prevention of pressure ulcers, contractures
Relaxation Techniques	Breathing exercises, progressive muscle relaxation, relaxing/soft music, visualization, meditation	Relaxation of mind and muscles
Stretching/PROM	Gently stretch/mobilize the patient's arms, hands, fingers, feet, ankles, knees, however take proper precautions with ROM restrictions	Loosen muscles to promote relaxation, improve ROM, increase blood flow
Physical Agent Modalities	Hot or cold packs	Hot: loosen/relax muscles Cold: reduce edema and swelling

Merilainen, M., Kyngas, H., & Ala-Kokko, T. (2010). 24 hour intensive care: An observational study of an environment and events. *Intensive and Critical Care Nursing, 26,* 246-253. doi: 10.1016/j.iccn.2010.06.003

Activities of Daily Living

Self Cares	Materials Needed	Client Factors Targeted	Precautions
Face Washing	Washcloth, warm water basin, mobile mirror	ROM, arm strength, visual perceptual abilities, memory	Raise head of the bed slowly, monitor blood pressure levels and check chart for restrictions
Oral Hygiene	Toothbrush, toothpaste, mouth swab, water basin	ROM, muscle function, memory	Check chart for restrictions such as nothing by mouth (NPO)
Grooming	Comb or brush	ROM, Visual perceptual abilities, strength, memory	ROM limitations
Apply lotion	Unscented lotion	ROM, strength, visual perceptual	Wounds, some scars, around operation or insertion sites, allergies. Check with physician and chart
Apply Chap Stick	Tube of Chap Stick	ROM, Visual perceptual, strength, comfort	

Dysphagia Diet: Levels of Food

Type of Food	Description	Examples
Level 1: Pureed	Cohesive and homogenous, do not require bolus formation, no mastication is required	Applesauce, pudding, mashed potatoes
Level 2: Mechanical Soft	Soft, moist food that is easily shaped into a cohesive bolus, pieces of food are less than ¼ inch	Cooked vegetables, fruits, pasta, minced or ground meats
Level 3: Advanced/ Firm Chewables	More food textures allowed, however sticky, hard, and crunchy foods are contraindicated, requires chewing and controlled bolus formation	Cookies, bread, meats (cut thinly), cereal
Level 4: Regular	All foods	

* Keep in mind, levels for dysphagia diets may vary depending on the facility.

Garcia, J. M & Chambers, E. (2010). Managing dysphagia through diet modifications. *American Journal of Nursing, 110*(11), 26-33.

Dysphagia Diet: Levels of Liquids

Fluids	Description	Examples
Nothing by Mouth (NPO)	Patient is not allowed to have anything to eat or drink	
Spoon thick	Eat with spoon, holds shape	Pudding, use commercial thickener such as (Thick it)
Honey-thick	Tough to pour, may drizzle	Honey, apple sauce
Nectar Thick Liquids	Pourable with minimal texture	Milkshake, maple syrup, eggnog, tomato juice, cream soups, V-8 juice
Thin, flavored liquids	No thickness, same consistency as water	Water, milk, coffee, juices, jello, ice cream, popsicles, ice chips

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