UHS | UNIVERSITY HOSPITAL SHARJAH
مستشفى الجامعة بالشارقة

ARISE NURSING
Accountability Respect Integrity Service Excellence

Arise

Quarterly Newsletter

July 2023 Edition

WHAT IS INSIDE?

- *Alarm Fatigue - Making Healthcare Safer*
- *Enhance Your Happiness - with UHS & Sharjah Fertility Centre*
- *Practicing Mindfulness As An Oncology Nurse*

For Appointments
+ 971 6 505 8555

UNIVERSITY HOSPITAL SHARJAH
P.O. Box 72772, University City, Sharjah, UAE, Tel: +971 6 5058555, Fax: +971 6 5058444
@UHSharjah | www.uhs.ae

UHS | UNIVERSITY HOSPITAL SHARJAH
مستشفى الجامعة بالشارقة

JCI ACCREDITED SINCE 2015

Alarm Fatigue

Making Healthcare Safer

Written by Nisha Manoj, ICU Staff Nurse

Alarm Fatigue - Making Healthcare Safer

Introduction

Alarms on clinical devices are intended to call the attention of caregivers to patient or device conditions that deviate from a predetermined “normal” status. They are generally considered to be a key tool in improving the safety of patients. The purpose of alarm systems is related to “communicating information that requires a response or awareness by the operator.” In some cases, the normal conditions are pre-set in the device, while in others the correct use of the device requires directly setting the parameter limits. The user often has the ability to turn the alarms on or off and to set the volume of the audible alarm output. Alarm information may also be transmitted away from the bedside to a remote location that can be down the hall, or at some distance away. Such transmission may also be disabled, either intentionally or inadvertently. When an alarm is triggered, the caregiver is tasked with noting the alarm, identifying its source, and responding appropriately. Effective alarm setting, noting and responding is a design, user, and systems issue.

Alarm fatigue, a technological hazard that comes with digitalizing health, occurs when clinicians experience high exposure to medical device alarms or alarm flood, causing alarm desensitization and leading to missed alarms or delayed response. As the frequency of alarms used in healthcare rises, alarm fatigue has been increasingly recognized as an important patient safety issue. Although the problem of alarm fatigue has been well documented, alarm-related events are often underreported, and there is still limited research examining interventions to address the issue.

In addition to the number of alarms, alarm volume was used as a clinical outcome measure of alarm fatigue. Excessive alarm noise creates an unpleasant and stressful work

environment and contributes to alarm fatigue as staff become desensitized to the white noise.

Alarm Fatigue - Making Healthcare Safer

Background

Healthcare continues to become increasingly computerized, and clinicians use an assortment of equipment and technology to monitor patient conditions. Most healthcare

devices provide auditory or visual warnings intended to alert clinicians when a patient's condition deviates from a predetermined normal range. Many device alarms emit different sounds, tones, and/or pitches depending on the level of severity (i.e., advisory vs. warning vs. crisis alarms) to help clinicians determine how to respond. System status or non-clinical alarms can also occur and are caused by mechanical or electrical problems, such as a device needing new batteries. Device alarms can be an important tool to assist in clinical decision making; however, alarms can become hazardous to patient safety. The proliferation of alarms generated by monitoring systems is a growing concern for anyone committed to patients.

Alarm Versus Alert

Taxonomy defines an "alarm" as a transient sensory signal (usually auditory or visual) that indicates an ongoing danger that requires immediate corrective action, while an "alert" indicates that an adverse event may occur in the future. For example, an alert may occur ten minutes before a patient is expected to deteriorate while an alarm might indicate asystole. Alerts give the operator more time to react, allowing a pre-emptive response that may allow the problem to be avoided, while a response to an alarm takes place when the danger exists and is reactive or corrective.

Ambient noises, including clinical alarms in ICUs, were estimated to be more than 80 dB.

False alarms are those that occur in the absence of an intended valid event, and nonactionable alarms occur when an alarm system works as designed but signifies an event that is not clinically significant and/or requires no additional intervention.

Nonactionable alarms can be caused by monitoring artifacts (e.g., electrocautery causing a "ventricular fibrillation" alarm), or a true deviation from the alarm limits that represents a clinically insignificant abnormality (e.g., a ventilator's apnea alarm activating while the patient is being intubated). One example of a nuisance alarm is a "high pressure" ventilator alarm caused by a patient cough.

Alarm desensitization is compounded by the fact that false or nonactionable alarms occur frequently. The high volume of these nuisance alarms is not only disruptive, but also creates a situation where staff doubt the reliability of alarms and as a result turn down the volume, ignore, or deactivate the alarms. This adversely affects patient safety because clinicians are not only ignoring the nuisance alarms but also ignoring or missing many clinically significant and actionable alarms.

Alarm Fatigue - Making Healthcare Safer

Importance of Harm Area

Clinical alarm problems have existed since the advent of monitoring and therapy devices used in healthcare. ECRI first reported an alert related to alarms in the 1974 issue of Health Devices at a time prior to the 1976 Medical Device Amendments that created the modern era of the Food and Drug Administration (FDA) regulation of medical devices.

The Joint Commission on the Accreditation of Healthcare Organizations established a National Patient Safety goal in 2002 to improve the effectiveness of clinical alarms. This goal was removed for hospital organizations in 2004 and incorporated into the standards of the Joint Commission on the Accreditation of Healthcare Organizations.

From 2005 to 2008, the U.S. Food and Drug Administration (FDA) Manufacturer and User Facility Device Experience (MAUDE) reporting system received 566 reports of patient deaths related to monitoring device alarms.

On April 18, 2013, the Joint Commission issued a sentinel event alert that highlighted the widespread problem of alarm fatigue in hospitals.

In 2011, the ECRI Institute has consistently identified alarm hazards as a top issue.

Alarm hazards were ranked first among the ‘Top 10 Health Technology Hazards’ by the ECRI Institute, an independent nonprofit organization dedicated to patient safety, in 2012.

During a 12-day period in an intensive care unit in the United States, an average of 350 clinical alarms per patient per day was reported by Johns Hopkins Medicine News and Publications, 2012.

Research has demonstrated that 72% to 99% of clinical alarms are false. Patient deaths have been attributed to alarm fatigue.

Alarm Fatigue - Making Healthcare Safer

Unintended outcomes of alarms

The large number of false alarms has led to several unintended outcomes. Some consequences are disruption in patient care, desensitization to alarm, anxiety in hospital staff and patients, sleep deprivation and depressed immune systems, misuse of monitor equipment including "workarounds" such as turning down alarm volumes or adjusting device settings and missed critical events. Some additional outcomes include workload increase, interference with communication, wasted time, patient dissatisfaction and unnecessary investigations, referrals, or treatments.

Alarm fatigue can lead to reflexive silencing of alarms, breaking monitoring protocols and missing true positive alarms—placing a burden on caregivers and jeopardizing their ability to care for patients.

Measures to Safe Practice

Performing baseline alarm risk assessments is an important step in order to understand current needs and conditions contributing to alarm fatigue. This can include evaluating medical devices and computer systems, analyzing data from clinical event reporting systems.

Quality improvement projects have demonstrated that strategies such as daily electrocardiogram electrode changes, proper skin preparation, education, and customization of alarm parameters have been able to decrease the number of false alarms. These and other strategies need to be tested in rigorous clinical trials to determine whether they reduce alarm burden without compromising patient safety.

Who can set and who can change parameters (and who can turn alarms off):

Trained staff are permitted to set, inactivate, deactivate, or change alarm levels to suit individual patient needs as per physician's advice.

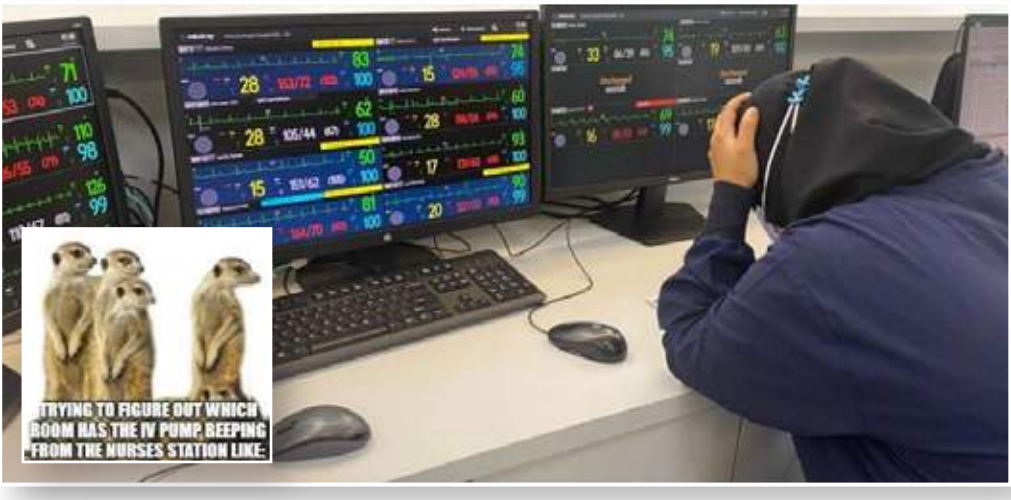
For patients on continuous monitoring the alarm settings and other safety checks must be performed and documented by the trained nurse at the beginning of each shift and documented in Patient Care Observation Record.

The alarm should not be inactivated unless the problem has been identified.

Alarm Fatigue - Making Healthcare Safer

Solutions: Simple and Complex

- Technical and engineering solutions, workload considerations, and practical changes to the ways in which existing technology is used can mitigate the effects of alarm fatigue. To reduce the frequency of nuisance alarms, device manufacturers have both sought to improve parameter acquisition techniques (e.g., motion- tolerant pulse oximetry) and improve alarm system design.
- Some manufacturers have implemented what are sometimes termed “smart alarms,” in which the alarm system considers multiple parameters, rate of change of parameters, signal quality, and more to avoid alarming for a high 8 pulse rate caused by pulse oximetry sensor motion if the heart rate determined by the ECG signal remains stable.
- Change alarm sounds to be softer and friendlier in order to improve identification of alarms by sound alone. Another recommendation is for clinicians to adjust the parameters and delays to alarms to match the patient's traits and status. However, this directly trades sensitivity for specificity.
- Use centralized alarms where alarms don't fire at the bedside, where a trained healthcare provider is available to evaluate each alarm and alert the bedside clinician
- Adjust alarm algorithms. The algorithms used can be adjusted to balance between sensitivity and specificity to limit the increased number of false alarms and still detect true deterioration.
- Tailor alerts to patient characteristics: use pediatric defaults when caring for a child and use the paced mode when a patient has a pacemaker or implantable cardiac defibrillator device).



Alarm Fatigue - Making Healthcare Safer

Solutions: Simple and Complex

- Care unit geography and staffing must be such that all alarms can always be heard by staff to avoid missing alarms by clinicians therefore missing patient's condition deterioration.
- Alarms on any piece of equipment may need to be deactivated or inactivated during an emergency, or when the patient is moved and during certain procedures, such as changing a tracheal tube, priming an infusion line, bathing, suctioning.
- Orientation and training: Clinical managers, preceptors and clinical educators provide the new staff members with a department-specific orientation to the medical equipment they will use and alarm response procedures. Training refreshers of existing staff will be annually as a part of Hospital Competencies or incident-based.
- Inspection, Testing and Maintenance.
- Preventive maintenance records will be logged for all equipment used with patients in the clinical area as per Biomedical Policy. The servicing includes clinical alarms checking according to the manufacturer's specifications.
- The Biomedical Department should be notified immediately when a clinical alarm is found to be defective. The medical device should be immediately taken out of service, red tagged and a work order placed in the computer for Biomedical Department or Maintenance to have device serviced.
- Invest in advanced clinical alerting.

Differentiating clinical alarms and technical alarms.

Medical signals can be further subdivided according to their underlying condition. Clinical alarms indicate that the patient requires immediate attention, while technical alarms indicate that the biomedical equipment requires attention. For example, ventricular fibrillation results in a clinical alarm, while a disconnected sensor or a poor-quality blood pressure tracing causes a technical alarm.

Alarm Fatigue - Making Healthcare Safer

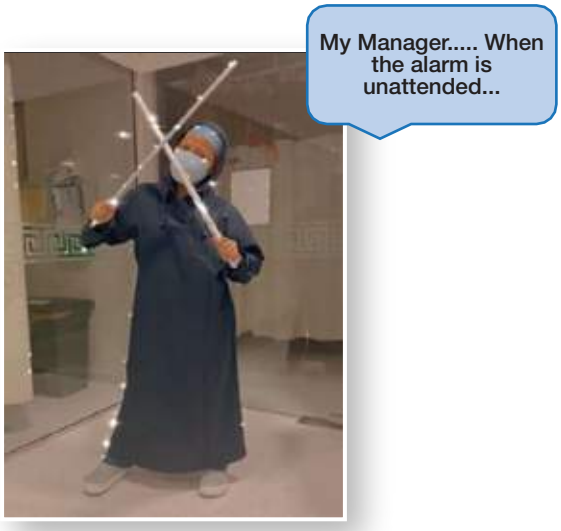
Conclusion

Alarm fatigue is a multifaceted problem with multiple contributing factors, including false alarms, and nonactionable alarms. Alarms are inevitable. The introduction of effective and continuous education and training programs for nurses concerning clinical alarm management as well as raising nurses' awareness of the occurrence of alarm fatigue is vital.

Leadership ensures there are clear processes in place for safe alarm management and response; leadership establishes priorities for the adoption of alarm technology; and at all staffing levels, practices are established to share information about alarm-related incidents, prevention strategies, and lessons learned. Efforts to address alarm fatigue through improving safety culture; clinical outcome measures and provider perceptions, as well as barriers and facilitators to implementation, are examined.

Like crying wolf, such false alarms rob the critical alarms of the importance they deserve. Alarm management and policy are critical to prevent alarm fatigue.

"Time spent responding to nuisance alarms is time lost for direct patient care".



Alarm Fatigue - Making Healthcare Safer

References

1. Schmid F, Goepfert MS, Kuhnt D, et al. The wolf is crying in the operating room: patient monitor and anaesthesia workstation alarming patterns during cardiac surgery. Anesth Analg. 2011; 112:78–83.
2. "ECRI Institute Releases Top 10 Health Technology Hazards Report for 2014". Archived from the original on 2016-03-05. Retrieved 2015-09-10.
3. Bliss JP, Gilson RD, Deaton JE. Human probability matching behaviour in response to alarms of varying reliability. Ergonomics. 1995; 38:2300–12.
4. Healthcare Technology Foundation. A Guide to Understanding Clinical Alarms. 2016. http://thehtf.org/documents/A%20Guide%20to%20Understanding%20Clinical%20Alarms.pdf.
5. Medical Electrical Equipment: General requirements for basic safety and essential performance.2015. https://www.iso.org/standard/65529.html.accessed December 1, 2018.
6. The Joint Commission. The joint commission announces the 2014 national patient safety goal. 2013. https://www.beckershospitalreview.com/quality/joint-commission-releases-2014-national-patient- safety-goals.html. [PubMed]

Written by Nisha Manoj,
ICU Staff Nurse

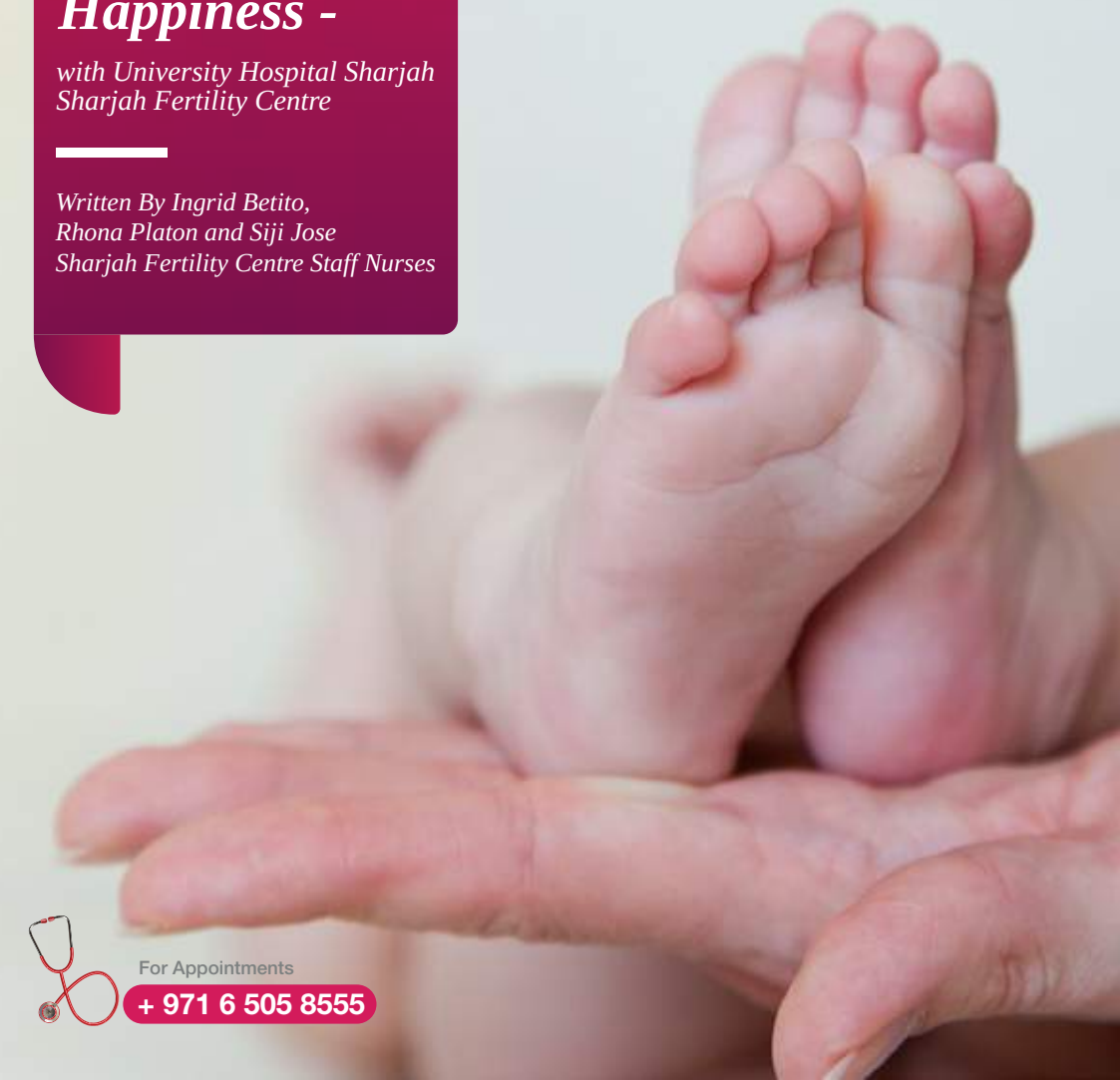
UHS | UNIVERSITY HOSPITAL SHARJAH
مستشفى الجامعة بالشارقة

JCI ACCREDITED
SINCE 2015

Enhance Your Happiness -

with University Hospital Sharjah Sharjah Fertility Centre

Written By Ingrid Betito,
Rhona Platon and Siji Jose
Sharjah Fertility Centre Staff Nurses

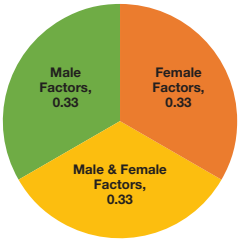


For Appointments
+ 971 6 505 8555

Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

Introduction

Every couple has the right to the enjoyment of the highest attainable standard of physical and mental health. Therefore, an important right for the couple rises which is the right of making a family. Infertility is a significant social and medical problem affecting couples worldwide, can negate the realization of this essential human right, and has an impact on their families and communities.



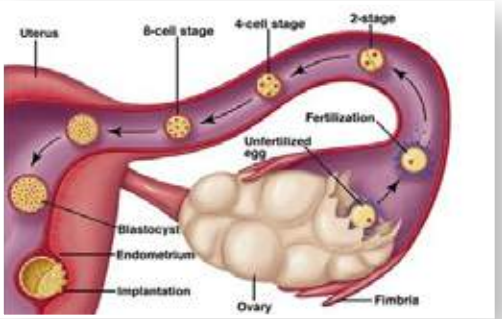
Globally infertility is related to

The reproductive system is a collection of organs and a network of hormones' production that work together to create life. The male reproductive system includes the testes (which produce sperm), penis, epididymis, vas deferens, ejaculatory ducts and urethra. The female reproductive system consists of the ovaries (which produce eggs or oocytes), fallopian tubes, uterus, cervix, vagina and vulva.

Fertilization is the natural life process, which is carried out by the fusion of both male and female gametes, which results in the formation of a zygote. In humans, the process of fertilization takes place in the fallopian tube.

Then the zygote travels down the fallopian tube, where it becomes a morula. Once it reaches the uterus, the morula becomes a blastocyst. The blastocyst then burrows into the uterine lining — a process called implantation.

Both the male and female reproductive systems must be functioning properly for a couple to conceive naturally. A problem with the structure or function of either reproductive system can cause infertility.



Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

What Is Infertility?

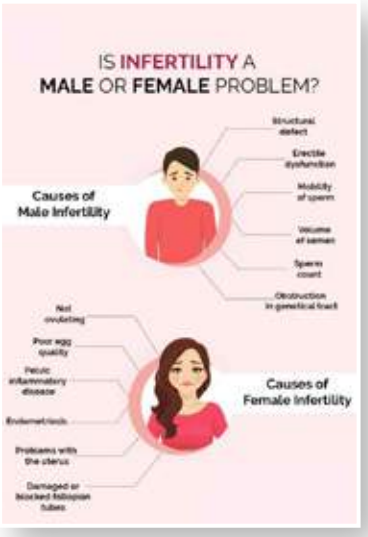
Infertility is defined as not being able to conceive after one year (or longer) of unprotected intercourse. However, for women aged 35 and older, inability to conceive after 6 months is generally considered infertility. Infertility can be caused in males or females by a variety of circumstances but it typically shows up as a decline in egg reserves in women and a decline in sperm count in men.

Infertility can be primary or secondary. Primary infertility is when a pregnancy has never been achieved by a person and secondary infertility is when at least one prior pregnancy has been achieved.

Causes of infertility

Some causes can be easily detected and treated, whereas others cannot. Approximately 10% of cases are unexplained, where no definitive cause can be identified.

There are many lifestyle choices that can impact our fertility. Let's take a look at some of these risk factors and how, with proper information and awareness, we can work towards the prevention of infertility in men and women.



Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

Various Options For Testing Infertility:

Infertility Tests for Men

Semen Analysis

Semen is tested for sperm count, sperm morphology, sperm motility and other properties.

Hormonal levels test by blood work

The test looks for luteinizing hormone (LH), follicle-stimulating hormone (FSH) [hormones responsible for triggering the production of sperm], prolactin and testosterone [male hormone].

Sexually transmitted infections (STIs)

By collecting a urine sample, an oral or genital swab or a blood sample to check for HIV, Syphilis, Herpes, and Hepatitis screening.

Ultrasound

Evaluate the seminal vesicles and the scrotum.

Post-ejaculatory Urine test

Checks for retrograde ejaculation- semen travels into the bladder rather than exiting the penis. retrograde ejaculation causes very little or no semen to release.

Testicular Biopsy

Removal of the testicular tissue via a minor surgical procedure.

Vasography

Specialized x-ray to look for obstruction of the male reproductive organs.

Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

Various Options For Testing Infertility:

Infertility Tests for Female

Basic gynaecological exam

To review the medical, menstrual and surgical history including pelvic exam to assess the internal and external genitalia.

Pap Smear

To detect problems with the cervix such as: cervical cancer, or sexually transmitted infections (STI).

Blood Test

To check for thrombophilia and antiphospholipid syndrome (in case of recurrent miscarriage). Hormones- LH, FSH, T4 and T3, Androgens, Prolactin, Estradiol, Progesterone, AMH.

Ultrasound

To look for polycystic ovaries, larger ovarian cysts, and fibroids, confirm ovulation, the shape of the uterus, the thickness of uterine lining and an antral follicle count- predicts the number of eggs available in a woman's ovaries.

Hysterosalpingogram (HSG)

To check obstruction or blockage in the fallopian tubes and evaluate the shape of the uterus.

Endometrial Biopsy

Performed by taking a small amount of tissue from the uterine lining.

Hysteroscopy

This is a telescope, camera-like, that is placed thru the cervix into the uterus to take a closer look at its inside if an HSG exam shows potential abnormalities.

Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

Various Options For Testing Infertility:

Infertility Tests for Female

Sonohysterogram

Places sterile liquid inside the uterus via the catheter and then evaluates the uterus and uterine wall via ultrasound.

Post-Coital Test

Visit the doctor after several hours of intercourse to have a sample of cervical mucus taken for microscopic examination; test both the viability of the sperm and its interaction with the cervical mucus.

Laparoscopy

It is a minimally invasive surgical procedure in which a telescope-like instrument with a light and a small camera allows the surgeon to examine the pelvic anatomy for causes of female infertility.

Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

Management And Treatment

In most cases, Infertility can be successfully treated based on age, cause and duration of Infertility.

Some causes of infertility can't be corrected. In cases where spontaneous pregnancy doesn't happen, couples can often still achieve a pregnancy through the use of assisted reproductive technology. Infertility treatment may involve significant financial, physical, psychological and time commitments.

Infertility Treatment for Men

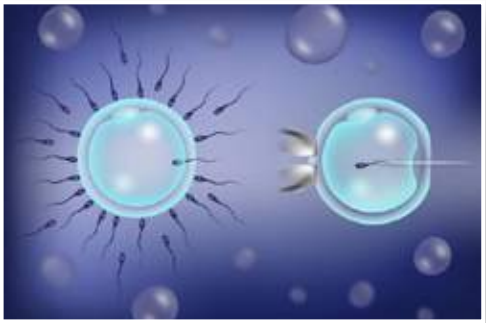
Men's treatment for general sexual problems or lack of healthy sperm may include:

- Improving lifestyle and certain behaviours can improve chances for pregnancy including gaining or losing weight, stopping smoking or using drugs, and avoiding exposure to environmental toxins.
- Medications can raise testosterone or other hormone levels. There are also drugs for erectile dysfunction to help you maintain an erection during sex.
- Surgery may be able to reverse sperm blockage and restore fertility in some conditions. In other cases, surgically repairing a varicocele may improve overall chances for pregnancy.
- The sperm retrieval technique helps to obtain sperm when ejaculation is a problem or when no sperm are present in the ejaculated fluid. They may also be used in cases in which assisted reproductive techniques are planned and sperm counts are low or otherwise abnormal.

Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

Infertility Treatment for Women

- Medication- Fertility drugs generally work like natural hormones to trigger ovulation.
- Clomiphene or Clomiphene Citrate
- Letrozole.
- Gonadotropins or Human Chorionic Gonadotropin (HCG)
- Bromocriptine or Cabergoline
- Assisted Reproductive Technologies
- IUI
- IVF
- ICSI



Some Infertility Problems Can Be Prevented — Here's How

- Maintain a normal body weight and exercise- Women who are overweight or underweight ovulate less regularly compared to women of a healthy weight. Similarly, overweight men are likely to have reduced fertility.
- Prohibit smoking and avoid drinking alcohol. Smoking lowers your chances for pregnancy and increases the risk of miscarriage.
- Practice safe sex. STI can lead to blockage of the fallopian tubes, prostatitis and other problems that reduce fertility.
- When you're ready to have children, don't delay. The age of the female partner is the number one determinant of successful fertility treatment for couples. The biological clock is real issue, older the female partner, the more difficulty a couple can face when trying to get pregnant.
- Stay informed. Consult a physician and ask questions to understand the process and be actively involved in your health.
- Reduce stress. Stress can cause couples to have poorer results with infertility treatment. Looking for ways to relieve the stress is crucial prior becoming pregnant

Enhance Your Happiness with University Hospital Sharjah - Sharjah Fertility Centre

References:

- Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion. (2023, April 26). Centers for Disease Control and prevention. Retrieved May 10, 2023, from https://www.cdc.gov/reproductivehealth/infertility/index.htm.
- UCSF Health - University of California San Francisco. (2023). Reducing Your Risk of Infertiliy . Retrieved from https://www.ucsfhealth.org/education/reducing-your-risk-of-infertility.
- Wendy Kuohung, MDMark D Hornstein, MD. (2023 , April 24). Overview of Infertility . Retrieved from UpToDate: https://www.uptodate.com/contents/overview-of-infertility
- WHO. (2023, April 03). World Health Organization. Retrieved from https://www.who.int/news-room/fact-sheets/detail/infertility.

Written By Ingrid Betito, Rhona Platon and Siji Jose

Staff Nurses - Sharjah Fertility Centre

UHS | UNIVERSITY HOSPITAL SHARJAH
مستشفى الجامعة بالشارقة

JCI ACCREDITED
SINCE 2015

Practicing Mindfulness As An Oncology Nurse

By Maryjo Patricio
Chemotherapy Infusion Unit
Staff Nurse

Practicing Mindfulness As An Oncology Nurse

Introduction

I graduated as a licensed nurse 13 years back. The transition between being a student to a professional nurse was occupied with mixed feelings: anxiety and excitement. Those moments give me goosebumps till this moment and they snap in my mind.

As I walked the path, my journey felt to me as riding a roller coaster with its own rewards and trials. I found that it was very essential to me to set my goals and write a plan to help navigate through my nursing profession.

I gravitated through my path from Medical/ Surgical nurse to a more specialized role in the Chemotherapy infusion unit. Becoming an oncology nurse was overwhelming for me at the beginning. In times of uncertainty, I even asked myself questions: “Am I capable of taking on this new role? What happens if I don’t fit with the team?”

Over time, I managed to conquer the change and my internal conflicts by setting an individualized vision to adapt and be more mindful. By doing so, many aspects of patient’s care from assessment, education, coordination, and supportive care also improved.

I discovered that oncology is a unique battlefield where patients’ population have different perspectives of life. The possibility of dying is always in the eyes of the cancer patients. Some meanings of life that a normal person doesn’t think of, or even understand are faced and often have no explanation. On the other side, the nurse has to go beyond her scope to look at patients and their families in a holistic manner by developing and improving her knowledge on the types of cancer, drugs, communication, listening skills, and the new advancement in nursing and medical field, and also by looking after herself to keep going stronger.

Here are some mindfulness tips that helped me to adjust and might be of benefit for you.

Praying

We all have different beliefs and faith but starting our day with a prayer will help us have a positive view of what lies ahead. It gives us comfort and relieves our fretfulness, reminding us that we are not alone through our day. It makes us thankful and mindful of the blessing we already have. Just think of how a thankful nurse will affect our patient care!

Breathing exercises

Deep breathing techniques have proven a lot of benefits for the patients to name few, like ventilation and pain relief. I decided to adopt these practices for my own relaxation. This helped me to focus more and be more relaxed.

Practicing Mindfulness As An Oncology Nurse

Teamwork

The healthcare industry is built around a multidisciplinary approach to patient care. We, nurses are part of the multidisciplinary team who collaborate on providing well-organized, comprehensive care to patients. Teamwork is crucial to facilitating effective communication and promoting positive patient's outcomes. As the overly used most famous quote goes "Teamwork makes the dream work." Working with a team make the work easier and contribute to less burnout.

Continuing education

Continuous education programs give an opportunity for exposure to the best practices that make work safer for nurses and healthcare professionals. Knowing best practices for us registered nurses are significant because they direct us toward solutions to identified problems and in particular the increasing needs in the vast domain of cancer

The use of all these concepts and broadening my horizon in the field helped me in my adjustment and predicaments during stressful situations.

People think is the most depressing place. However, I learnt that it is truly a positive place to work. Oncology taught me to appreciate the smallest of blessings and simplest things, beautiful sunsets, waking up every morning, great coffee, and many more.

Finally, connection with the cancer patients is the very reason why I have a big interest in oncology.

Reference:

How I Practice Mindfulness as an Oncology Nurse. (2023, March 3). ONS Voice.
https://voice.ons.org/stories/how-i-practice-mindfulness-as-an-oncology-nurse

By Maryjo Patricio
Staff Nurse - Chemotherapy Infusion Unit

UHS | UNIVERSITY HOSPITAL SHARJAH

مستشفى الجامعة بالشارقة

- AWARDS & ACCREDITATIONS -

UNIVERSITY HOSPITAL SHARJAH

P.O. Box 72772, University City, Sharjah, UAE, Tel: +971 6 5058555, Fax: +971 6 5058444

@UHSharjah | www.uhs.ae