MKSSS'S BTINE

BOOKLET ON

TECHNOLOGY: PRESENT AND FUTURE NURSING

MAHARSHI KARVE STREE SHIKSHAN SAMSTHA'S
SMT. BAKUL TAMBAT INSTITUTE OF NURSING EDUCATION

REGISTRATION FORM

Full Name (block letters):

_____
_____

Category: Faculty ☐ **Nurse** ☐ **Student** ☐

Age: _____ **Gender: Male** ☐
Female ☐

College/ Hospital
Address:

_____
_____
_____

Contact No and email: _____
_____

Applicant's Signature

Registration fees Rs. 300/-

Bank Details	
Bank Name	Syndicate Bank
Bank Account Name	Smt Bakul Tambat Institute of Nursing Education
Bank Account No	53392010044961
Bank Account Type	Savings account
Bank IFSC Code	SYNB0005339
Bank Branch Name	Karvenagar

SCHEDULE

Time	Session	Resource Person
09th March 2018		
8:00–10:00am	Registration	
10:00am	Inauguration	
10:00 -11:00am	Overview of Technology: Present and Future	Dr. Meena Ganapathy, Principal/Professor, Ph.D.(N), MKSSS, BTINE
11.00-12:00pm	Technology in Nursing Education	Mrs. Minakshi Garud, Asst. Professor, MKSSS, BTINE
12:00-1:00pm	Technology in Nursing Practice (Part –I)	Mrs. Dipali Awate, Lecturer, MKSSS, BTINE
1:00-1:30pm	Lunch	
1:30–2:30pm	Technology in Nursing Practice (Part –II)	Mrs. Ujwala Jadhav, Asst. Professor, MKSSS, BTINE
2:30-3:30 pm	Legal and Ethical Implications of Technology	Ms. Smita L, Asst. Professor, MKSSS, BTINE
3:30 -4:00 pm	**Panel Discussion** Technology: Pros and Cons	Dr. Shubhada Ponkshe, Asso. Professor, MKSSS, BTINE
4:00-4:15pm	Valedictory Session	

Continuing Nursing Education

ON

"Technology: Present and Future Nursing"

9th March 2018
Organized by

MKSSS'S SMT. BAKUL TAMBAT INSTITUTE OF
NURSING EDUCATION KARVENAGAR, PUNE-52
NAAC Accredited

Email:- btine03@gmail.com, btine09@gmail.com,
confbtine@gmail.com
Phone: +91-20-25477557, 25475020
Website: www.mksssine.ac.in

VENUE

Maharshi Karve Stree Shikshan Samstha's
Smt. Bakul Tambat Institute of Nursing Education,
Auditorium, Ground Floor, Karvenagar Pune
MNC 2 credit Points

"Women's Education and National Development are Closely Related"

Maharshi Karve Stree Shikshan Samstha (MKSSS) our parent body, has been committed to "Empowerment of women through education" for over a century. Maharshi Karve Stree Shikshan Samstha was founded by the great visionary and social worker Bharat Ratna Maharshi Dhondo Keshav Karve in 1896. The Samstha runs 60 branches with 10 higher education institutes giving education to 30,000 girl students. It has maintained a high standard of quality of education with a transparent administration.

MKSSS, BTINE

The Maharshi Karve Stree Shikshan Samstha`s Smt. Bakul Tambat Institute of Nursing Education (BTINE) was started in the expansive campus of the Samstha in Pune in August 2000. The Institute is approved by the Indian Nursing Council, Delhi, Maharashtra Nursing Council, Maharashtra Government and Maharashtra University of Health Sciences, Nashik. The Institute runs ANM, GNM, B.B.Sc, P.B.B.Sc, M.Sc, & Ph.D courses. Clinical learning is conducted in the Deenanath Mangeshkar Hospital and Mai Mangeshkar Hospital.

The Principal, faculty and students of MKSSS, BTINE invite you for the conference on

"Technology: Present and Future Nursing"

Nurses need to become innovative and techno savvy to meet the healthcare demands of the present and future generations. Technology is the combination of the hardware and software management of any system for better production of goods and services. It is not only about machines. It is also about human service.

Nurses as the major workforce in the healthcare delivery system are key players in this technological revolution. Globalization has brought great technological revolutions in nursing, developed countries like USA, have already started initiatives like **TIGER** (Technology Informatics Guiding Education Reform.)

Therefore we in India and Maharashtra also need to educate our students and nurses in the clinical field about technology, to foster a balance between the present health needs and future health care demands. Each one of us needs to be geared for the technological revolution to meet the challenges and opportunities that we are facing and are likely to face.

This CNE is organized to teach with and about technology to prepare the nursing workforce for the present and future challenges.

Sub themes

- Technology: an overview
- Technology in nursing education
- Technology in clinical practice
- Legal and ethical implications of nursing technology

Objectives

- Discuss present and future technology.
- Describe the technology in nursing education.
- Describe the technology in clinical nursing practice.
- Critically analyze the legal and ethical implications of technology in nursing.
- Discuss the pros and cons of technology in nursing.

BASIC B. SC. NURSING [B.B.SC(N)] :

Duration : 4 years

Intake : 50 students

Eligibility : 12th Std Passed or its equivalent with Biological & Physical, Sciences (PCB) with 45% marks and Passed in English

Admission Procedure : NEET is mandatory

Website: dmer.org

mahacet.org

MASTERS IN NURSING [M.SC. (N)]

Duration : 2 years

Specialties : Medical Surgical Nursing, Mental Health Nursing, Obstetric & Gynecology Nursing.

Eligibility : B.Sc Nursing/Post Basic B.Sc Nursing with 55% aggregate, with one year experience after MNC registration.

POST BASIC B. SC. NURSING [P.B.B.SC(N)] :

Duration : 2 years

Intake : 30 students

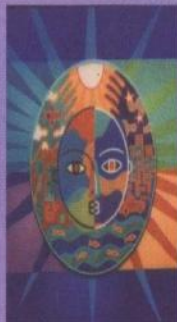Eligibility : RGNM passed with Nurse & Midwife registration

Ph.D. NURSING CENTRE STARTED FROM 2011.

Duration : 3 years

Eligibility : M.SC(N)

Admission Procedure : PET Pass from MUHS

"Committed to developing conscientious, confident and caring quality nursing professionals of international repute."

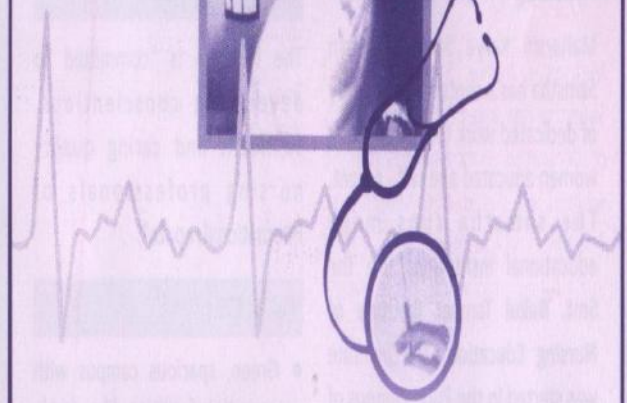Maharshi Karve Stree Shikshan Samstha's

SMT. BAKUL TAMBAT INSTITUTE OF NURSING EDUCATION
(Affiliated to INC, MNC, MUHS & NAAC Accredited)

Karvenagar, Pune 411 052
Telefax: 25475020, 25477557, 65275020 Fax : 020 - 2547 5020
E-mail: btine03@gmail.com, btine09@gmail.com
Website: mksssbtine.ac.in, mksssbtine.org

"Women's education and national development are closely related"
— Maharshi Karve

Maharshi Karve Stree Shikshan Samstha has a century long history of dedicated work towards making women educated and self - reliant. The samstha runs many educational institutions like the **Smt. Bakul Tambat Institute of Nursing Education.** The Institute was started in the Pune campus of the samstha in August 2000.

The Institute is approved by Indian Nursing Council (INC), Maharashtra Nursing Council (MNC), Maharashtra State Government and Maharashtra University of Health Sciences. The Institute offers a 2 - year Revised Auxiliary Nurse and Midwife Programme, 3 years diploma programme in General Nursing and Midwifery (G.N.M), 4 years degree programme in Basic (B.Sc) in Nursing,

2-years degree programme in Post Basic B.Sc. Nursing (P.B.B.Sc), 2 - years Post graduate degree programme (M.Sc) in Nursing and Ph.D (N) centre for the benefit of 600 girl students.

MISSION :

The Institute is "committed to developing conscientious, confident and caring quality nursing professionals of international repute".

FEATURES :

- Green, spacious campus with essential facilities like bank, hostels, health club and post office.
- Own building with spacious classrooms, counseling center, a conference room and nursing arts laboratory.
- Library with latest 10,000 books from USA, UK and India on nursing, allied and general topics.
- Hostel with mess and recreational facilities.
- Experienced and committed faculty comprising full time and external lecturers.

- Spacious nursing arts laboratory with mannequins, models and audiovisual aids from Germany & USA.
- Various co-curricular and extra-curricular activities throughout the year.
- Collaboration with Jnana Probodhini Medical Trust and Lata Mangeshkar Medical Foundation which runs the 1000 bedded Deenanath Mangeshkar Hospital in Pune.
- Deenanath Mangeshkar Hospital is a multi specialty hospital.

ALUMNI ASSOCIATION

Tie-up for providing job opportunities to students after completion of course.

ALUMNI ASSOCIATION

The Institute of Nursing Education has achieved 80-100% results in the Maharashtra Nursing Council final examinations of Mumbai & Maharashtra University of Health sciences, Nashik till date.

PROGRAMMES OF MAHARSHI KARVE STREE SHIKSHAN SAMSTHA'S SMT. BAKUL TAMBAT INSTITUTE OF NURSING EDUCATION

REVISED AUXILIARY NURSING MIDWIFERY (R.A.N.M.)

Duration : 2 years

Intake : 30 students per annum

Eligibility : 12th std. passed, any faculty

Admission : On merit basis.
Procedure

GENERAL NURSING AND MIDWIFERY (G.N.M.)

Duration : 3 years

Intake : 60 students

Eligibility : 12th std passed or its equivalent, preferably with Science, with 40% marks.

Admission : On merit basis.
Procedure

TECHNOLOGY: PRESENT AND FUTURE NURSING

CHIEF EDITOR:
DR. MEENA GANAPATHY

EDITORIAL BOARD:
MRS. NUPOOR BHAMBID
MRS. SHAILAJA MATHEWS
MRS. PRITI PIMPLEKAR

CREATIVE AND GRAPHICS:
DR. MEENA GANAPATHY
MRS. SHAILAJA MATHEWS

INDEX	
Topic	**Resource Person**
Overview of Technology: Present and Future	Dr. Meena Ganapathy, Principal/Professor, Ph.D.(N), MKSSS, BTINE
Technology in Nursing Education	Mrs. Minakshi Garud, Asst. Professor, MKSSS, BTINE
Technology in Nursing Practice (Part –I)	Mrs. Dipali Awate, Lecturer, MKSSS, BTINE
Technology in Nursing Practice (Part –II)	Mrs. Ujwala Jadhav, Asst. Professor, MKSSS, BTINE
Legal and Ethical Implications of Technology	Ms. Smita L, Asst. Professor, MKSSS, BTINE

"Technology: Present and Future Nursing" An Overview

Dr. Meena Ganapathy, Principal cum Professor MKSSS.BTINE.

What is Technology?

- Technology is the bridge connecting techniques and science in the production of goods & service for the benefit of society.
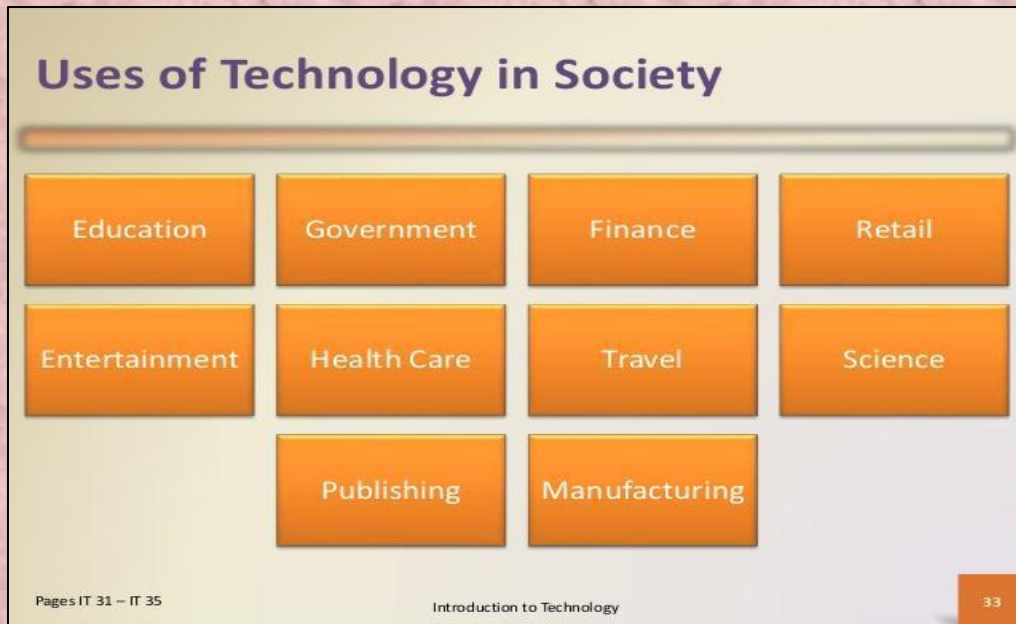- Tech = Techniques
- Ology = Science

Impact of technology on society

Types of Technology

- Biological Technology = agriculture + health
- Physical Technology = manufacturing, construction, energy and transportation
- Communication & Information Technology = phones, computers, microwave, radio waves & digital & analogue communications

Uses of Technology

- For progress
- Source of economy
- Improve life = all the aspects of life such as health, environment, education, entertainment, comfort, communication, work, transport, business, food production, storage & consumption etc…
- For efficiency & effectiveness

Uses of Technology in Society

Education | Government | Finance | Retail
Entertainment | Health Care | Travel | Science
Publishing | Manufacturing

Pages IT 31 – IT 35   Introduction to Technology   33

Changing life with technology

- "Social, political, and economic systems change incrementally, but technology changes exponentially".

Larry Downes

Technology & Nursing

What Technology Means To Nursing?

- There are many present & emerging technologies that have changed and will change the practice of nursing in the coming decade.

Present technology in nursing:

Technologies for basic nursing care

- Electronic IV monitors& the Sphygmomanometer
- The portable defibrillator & the sonogram/ultrasound & imaging
- Configurable nursing environments
- Electronic lift systems & Compact, portable devices
- Drug management technologies & Neo-natal nursing advancements
- Information & communication Technologies
- Sturdy, portable IT devices
- Readily accessible base of information
- Local wireless telephone networks
- Hands-free communication devices
- Communications options
- Information management (Nursing informatics)

- Patient remote monitoring

Technologies for learning

- RFID technologies (radio frequency identification)
- Learning technologies
- Video conferencing
- The blogosphere

Present Technologies: Health records

1. Clinical Information Systems: These systems bring together an organization's patient records, lab results, pharmaceutical data, medical research resources and other information, providing nurses and other caregivers with integrated, PC-based tools to help them input and retrieve information.

2. Electronic Health Records: Patient records in this format provide instant access to a patient's medical history, improve communication between caregivers and offer flags and alerts to prevent conflicts over prescriptions and tests

Present Technologies: devices

1. Drug Retrieval-and-Delivery Systems: These utilize several technologies, including bar codes and automated dispensing machines, to ensure patients receive the correct medications and dosages.

2. Medical Devices: Devices such as infusion delivery systems and ventilators often have "brains built into them," These electronic brains assist nurses by flagging problems and helping to avoid errors

Present Technologies: computers

- Tablet Computers, Wall-Mounted PCs and Mobile Carts: These computer-based tools allow nurses to enter and retrieve information housed in a facility's information system without leaving the bedside.
- Personal Digital Assistants: PDAs with add-on software can help nurses' research conditions and check medication doses.

Emerging Technologies that Are Changing the Practice of Nursing

- Genetics and Genomics
- Less Invasive and More Accurate Tools for Diagnostics and Treatment
- 3-D Printing
- Robotics
- Biometrics
- Electronic Healthcare Records (EHR)

- Computerized Physician/Provider Order; Entry (CPOE) and Clinical Decision Support
- Wearable Technologies

Genetics and Genomics

- Finding risk of developing a disease such as cancer, cystic fibrosis, DM, HT, CAD, sickle-cell anemia, or Thalassemia.
- Prenatal screening to diagnose some conditions in utero.
- Newborn screening (to determine inherited conditions such as phenylketonuria [PKU], cystic fibrosis, or sickle cell disease)
- This facility is available at DMH

Less Invasive and More Accurate Tools for Diagnosis and Treatment

- Tattoos have been developed that can monitor blood glucose without a finger prick, a huge advancement for the 26 million Americans with diabetes (Howard, 2011).
- Scanning technology is predicted to improve to the point that images of soft and hard tissues in the body will be so clear that exploratory surgery and invasive procedures will virtually be eliminated within a few decades.

3-Dimensional (3D) Printing

- 3D printing, also known as additive manufacturing, "is a method of building objects layer by microscopic layer, fusing each cross section of molecules until a complete object is formed"

Electronic Health Records

- The electronic health record (EHR) is a digital record of a patient's health history that may be made up of records from many locations and/or sources, such as hospitals, providers, clinics, and public health agencies (Huston, 2014).
- NeHA in India in NHP 2017.

Computerized Physician/Provider Order Entry and Clinical Decision Support

- CPOE is a clinical software application designed specifically for providers to write patient orders electronically rather than on paper.
- This facility is available at DM

Biometrics

- Face detection
- Fingerprints
- For checking-in
- This facility is available in India.

Robot carers

- Will Nurses be replaced by robots?

Robotic nurses

- Japanese government wants to increase acceptance of technology that could help fill the gap in the nursing workforce
- https://www.theguardian.com/world/2018/feb/06/japan-robots-will-care-for-80-of-elderly-by-2020
- In Japan, where nearly 30% of the population is over 65, its birth rate is low, and not enough people are entering the workforce to care for the elderly, a proposed solution includes robotic nurses. Japan has several versions of robotic nurses that can perform simple tasks, like taking vital signs and moving patients.

Robotics in caregiving

- In the United States, Duke University's School of Engineering and School of Nursing have collaborated to create the Tele-Robotic Intelligent Nursing Assistant (TRINA).
- Nurses and physicians remotely navigate this robot without entering a patient's room. TRINA can transport linens, take vital signs, and deliver food and medications.

Wearable for healthy lifestyle:

1. For having the best night's sleep
2. For staying fit and energetic
3. For getting rid of stress in your life
4. For keeping blood pressure optimal
5. For keeping track of your weight
6. For keeping your heart healthy
7. For measuring your body temperature
8. For helping to meditate effectively
9. For exercising in the most effective way possible
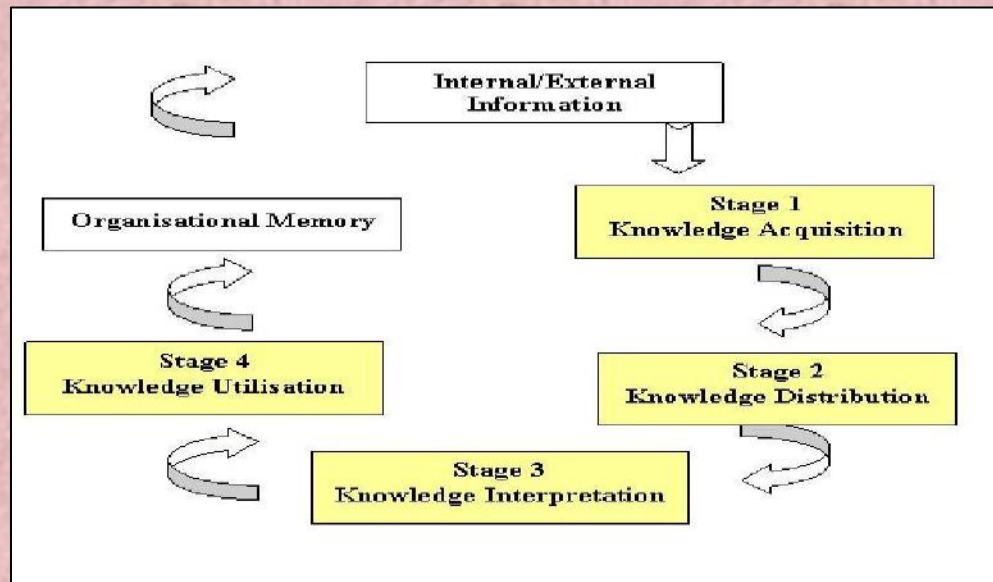10. For improving your general well-being

Three Nursing Skill Sets Needed to Appropriately Respond to Emerging Technologies

- Being able to use technology to facilitate mobility, communication, and relationships
- Having expertise in knowledge information, acquisition, and distribution
- Understanding and using genomics in nursing
1. Able to use technology to facilitate communication, and relationships

Ability to use Email, telehealth and telemedicine, internet, cellular technology, text messaging, video conferencing, smart phones, social media networking, global positioning systems, bio-electronics is a must for Nurses.

2. knowledge information, acquisition, and distribution

Nurses need to understand Information literacy, evidence-based practice, clinical decision support, knowledge management, knowledge engineering, etc…

3. Understanding and using genomics in nursing

- Understanding of the Human Genome Project., Understanding of the ethical issues related to genomics encountered throughout the life continuum and around the world;

- Ethno-cultural beliefs and practices for utilization of genomic-based care; and resources available to arm nurses with information to learn about and teach genetics (First Genetics, 2008).

Four Nursing Leadership Challenges in Integrating New Technology

- Balancing the Human Element with Technology
- Balancing Cost and Benefits
- Training a Technology Enabled Nursing Workforce and Assuring Ongoing Competency
- Assuring that Technology Use is Ethical

1. Balancing the Human Element with Technology

- The human connection is the art of nursing and nurses need to be actively involved in determining how best to use technology to supplement, not eliminate, human resources.

2. Balancing Cost and Benefits

- Sometimes technology development comes first and then a need is created simply because the technology exists.
- In addition, access to technology is often dependent on a person's ability to pay for that technology; many healthcare disparities still exist in this regard

3. Training a Technology Enabled Nursing Workforce and Assuring Ongoing Competency

- Who will need to be responsible for assuring ongoing competency in a digital era where half of what someone knows is obsolete in three years?

4. Assuring that Technology Use is Ethical

- Thomas Baldwin, a professor of philosophy at Britain's York University, suggested that new technologies bring significant hopes of curing terrible diseases as well as fears about the consequences of trying to enhance human capability beyond what is normally possible **(Kelland, 2012).**

Future

We must understand it is not information or even technology that will produce this unprecedented change, but the impact of technology on all aspects of human life; not computers or even bits and bytes, but the ability to apply and integrate rapid technological change.
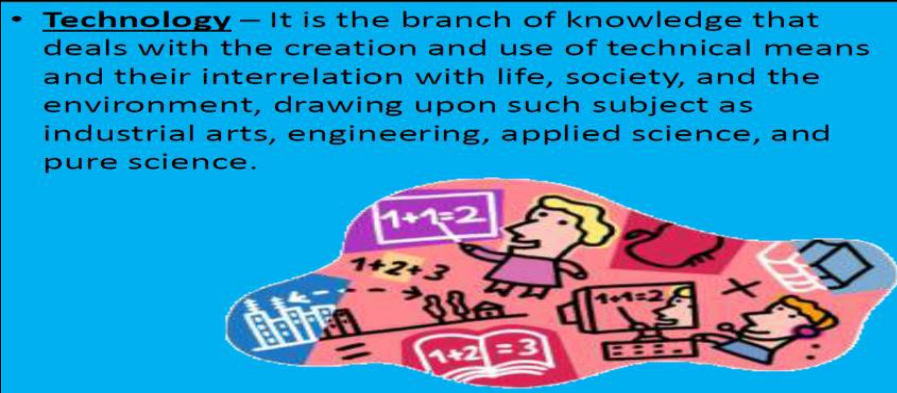
The Future of Nursing

- Nurse leaders must begin thinking now about how emerging technologies will change the practice of nursing. And proactively create the educational models and leadership development programs necessary to assure that nurses will have the competencies they need to address these emerging technologies.

TECHNOLOGY IN NURSING EDUCATION

Mrs. Minakshi Garud, Asst. Professor, MKSSS'S BTINE.

Introduction

Advances in technology have had a profound effect on the way we learn and the way we teach.

Definition of nursing technology

It is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources.

Recent teaching technology

Education technology is the effective use of technology tool in learning as a concept it concerns an array of tools such as media, machines and networking hardware as well as considering underlying theoretical perspective for their effective application.

Advantages

- Easy to assess information.
- Greater interest in learning.
- Increased retention of information.
- Robust information storage.
- Better presentation of information.
- Teaching is made more interactive.
- Knowledge sharing made easy.
- It can make teaching more effective.
- Organization of matter can be easily done.

Technology Affecting Cognitive, Affective & Psychomotor Skills Cognitive
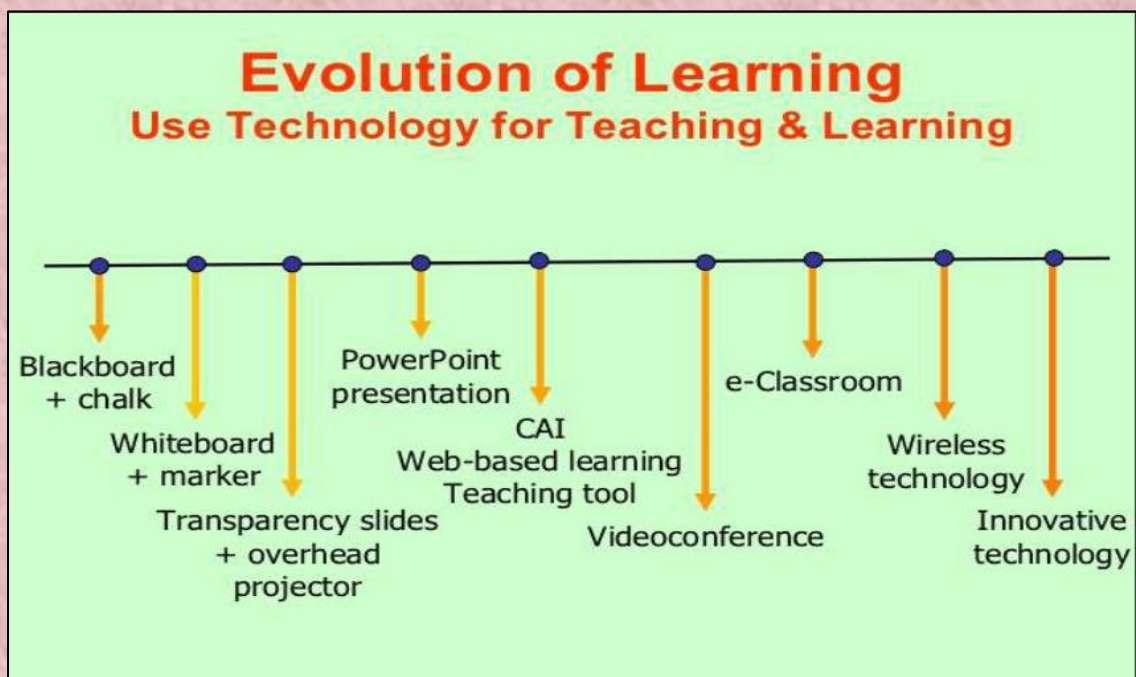
- Technology facilitates learning.

- It helps in analysing.
- Technology also cooperate learning by new ideas.

Affective

- Students develop interest in learning.
- Students can't express their feeling to technology.

Psychomotor skill

- Less motor skills are developed.
- More psychological skills are developed. Provides a real environment with help of multimedia, video etc.
- Reduces physical effort. For example- carrying books.

Importance of technology in nursing education

- Nurse educators' use of technology in teaching continues to expand at a dizzying pace. It is hard to imagine planning a course or class without thinking about technology that might be used to engage students in learning and meet the instructional goals.
- A shift is taking place across higher education in which students are learning by creating rather than consuming content delivered by the teacher.
- In more and more nursing programs, students work in groups solving problems, analysing cases, and discussing higher-level questions about nursing.
- They create Web sites, podcasts, videos, and other multimedia. Students are learning together and from each other and developing products of their learning.

- They use digital storytelling as a means to create and share the stories about palliative care.
- Technology also exposes students to clinical scenarios they would not encounter in their practice.
- It helps to bridge the gap between theory and practice.
- Faculty can integrate technology in a case history, for example, by adding podcasts, hyperlinks, video clips, and images, to provide the context for the case, engage students in meaningful learning, and develop their clinical reasoning skills.
- Similar to technology, nurse educators' use of innovative methods of teaching that engage students as active learners continues at a rapid pace.

Types of educational technology

- Electronic media : E-Learning E-Teaching E-Tutoring
- Teleconferencing
- Virtual Campus , Virtual classroom, Smart board
- PowerPoint presentation on LCD projector
- Mobile ,Tablet and I pads
- Audio Visual medium : Radio, Audiocassettes ,Educational Television
- Online teaching
- Simulation
- Digital library
- Multimedia
- Internet
- Software

Electronic media

- Reaches to a large number of learners at same time and to various places.
- Makes educational experience more comprehensive.
- Can record learner's performance and provide feedback.
- Power to stimulate interest
- Facilitate learning
- Provide learning atmosphere so students take active participation in learning process.

E-Teaching

- It is a technique that uses the internet to improve student success by enhancing and extending classroom instruction via the web.
- Faculty uses internet to post course materials, assignment before class, and students use materials on the web to prepare for each class.
- E-tutoring provides live, online coaching, homework guidance and focused exam preparation from the tutors, irrespective of geographical location.
- For online teaching-learning an internet connection, a computer microphone and computer speakers are needed.

E-Learning

- It is an emerging educational paradigm where learners identify specifically what they need to learn and access it quickly from a wide variety of educational providers.
- It incorporates Web and internet based applications as well as CD-ROMS.
- Content can be stored and reused by others.
- Helps learners stay on top of today's fast paced education world.
- E-learning is use of technology based tools & processes to provide for customized learning anytime or anywhere.
- Electronic learning is a type of education where the medium of instruction is computer technology.

E-mail

- Teachers and students worldwide are beginning to use this ability to talk to each other. E-mailing back and forth with another classroom also provides excellent opportunities for students to practice writing skills for a real-life purpose.

Advantages

- Easy to send information in long distances.

- Health education can be given post discharge.
- It is asynchronous.

Disadvantages

- Requires good internet connection.
- Electronic mail lacks contexts. It is without cues like facial expressions, voice tone etc.
- Email messages can create violation of privacy for both nurse & clients.

Teleconferencing (Audio, Video and computer-teleconferencing)

- It is a set of interactive telecommunication technologies which allow two or more locations to interact via two way video and audio transmissions simultaneously.
- Is an electronic means which can bring together 3-4 persons for sharing knowledge, views or clarifying the concepts.
- Popular in higher education for academic discussions and even for conducting interviews.
- It increases quality of instruction as the expert and the student can see each other and can share their feeling and experiences.
- The system is very useful when the students are widely scattered and can cover the large group.
- It provides facility for immediate feedback to the learners.
- Enhances public speaking skills.

Advantages

- Less cost
- Fast speed
- Makes class interesting.
- Easy to search topics.

Disadvantages

- Learning online is a solo act .Learner feel alone.
- Eyestrain, bad posture and other physical problems may affect learner

Smart Class

- Smart class is defined as a class in which various technologies are used to enhance students learning.
- In a smart class there will be computers, projectors, internet connectivity and other multimedia devices such as home theatre etc.

- Students can use internet.

Virtual Classroom

- Profound investments in technology in this decade have given rise to explosion of information.
- A virtual classroom is a learning environment created in the virtual space.
- It includes delivering lectures online by using print media in the form of textbooks and course notes to a large number of students at different places in the world.
- Recording of each class is done so if student miss it or want to review it, it is easily available.
- Especially useful for higher education and at other countries. They provide certification after completion of the course.

Smart Boards or interactive white boards

- An interactive whiteboard is a large display that connects to a computer and a projector. The projector projects the computer's desktop onto the board's surface.

Advantages of smart boards

- Provides Flexibility: Interactive whiteboards allow photos, illustrations, maps, graphs, games, and video to be displayed.
- Enhanced teaching/learning experience
- Interact and share
- Low-Maintenance: SMART Boards are neat and easy to use
- Access to online information & tools
- Going Green: Eco friendly
- Technology Integration
- Communication: Interactive whiteboards allow for connectivity in different locations.

Power point Presentation

Power point which is commonly used now for educational presentation has a selection of transitions as a feature all of which are borrowed from film and television editing techniques, character animation within the frame, and overall dramatic structure are things that are taken from film and television in particular for use in educational computers application.

LCD projectors

- LCD projector is a type of video projector for displaying video images or computer data on a screen or other flat surface. LCD means "liquid crystal display.

- Multimedia projectors, which are the compact devices that project images in high resolution, are commonplace in many of today's classrooms.

Mobiles, Tablets & I-pads

- It is almost impossible to imagine being without a cell phone or using ipad as a digital tool.

- Many healthcare associations have begun to provide telephone services with messages about disease treatment & prevention.

- For example- The American Cancer Society has established a toll free number for public to obtain short taped messages about various types of cancer.

- Many hospitals & healthcare agencies have established hotline consumer information centres manned by knowledgeable healthcare personnel so that information can be personalized & appropriate information can be given at the spot. Example- The Poison Control Hotline

Mobile Technology

- The use of mobile technology in nursing gives students (and working nurses) instant access to drug references, diagnoses, medical textbooks and more using apps and online guides on smartphones and tablets. "These devices are becoming more important in the health care environment with an advantage of providing details of drug, nursing procedures and treatments, and disease information to nursing students."

- Nursing programs vary in the type of technology they use, and they introduce new technology almost daily. No doubt the future will bring more technological ways to enhance the educational process for nurses while also improving patient safety.

Educational / Teaching Tools

- Educational tools include various social networking sites & apps which can increase & upgrade our knowledge. These includes

- Facebook provides health related tips such as CIMS Cancer Page, Health.com, everyday health etc.

- YouTube provides educational videos.

Online Educational Technology

- Online education operates through a Learning Management System (LMS). These software programs handle all facets of the e-learning process, including delivering

content, handling registration for courses, and tracking and reporting. Nursing schools can chose from a number of different systems, each offering different features and benefits.

Simulated Environments

- Another use of technology in nursing education is simulations with electronic, training mannequins. Instructors can program the mannequins to mimic scenarios nurses might see in clinical practice. Students can take vital signs and make decisions based on the mannequin's symptoms. It is a safe environment where students can practice their critical thinking and decision-making skills.

- While mannequins require a physical presence, online virtual realities can simulate patients as well. Using screen-based simulation such as serious gaming, a nursing student can respond to simulated patients in real-time using the appropriate tools and procedures. Companies make virtual simulation software to help educate nurses and other healthcare professionals.

- The emerging use of game-based learning has the same benefits of learning in a simulated environment. "In games, the learner can travel down an infinite number of paths that have been determined through the rules integrated into the game engine."

Radio/Audio Medium

- Easy accessibility.

- Wide coverage.

- Low capital investment and operating cost.

- Easy learner reception.

- Effective thought promotion.

- Motivate supportive facilities.

- Easy production.

- Effective- creation/transmission of reality.

- Direct instruction.

Television

- Television carters to the masses of people including people living in remote areas.

- Television programmes are well planned and presented, thus providing higher quality of instruction.

- Rapid and continuing change in curriculum and instructional methods are made possible through educational television.

- It reduces dependency on teacher.

- Television provides in- service training for teachers to improve their teaching methods and skills.
- It has proved its effectiveness/supremacy in teaching certain subjects in nursing.

Digital Library

- It involves collection of multimedia and other types of resources which are available in computer process able form.
- It access the entire collection which is globally available through network.
- To capture, store, organise and distribute information.
- To introduce, provide and retrospect services.
- To have large digitized databases.
- To provide facility for networking and resources sharing.
- To improve the cost effectiveness of library operations.
- To digitize the document for preservation.

Multimedia

- Multimedia presentations are those that are assembled inside the computer and played by it on a monitor or projection screen.
- During the class, if learners get a doubt, they can scroll lock key as a help button. The teacher hears a beep sound and gets a hand raise on a learner's computer icon. Then the teachers get into conversations mode with the learner and clear his or her doubt, while all the other learners overhear them. The teacher and learner can chat through remote messaging board also.
- The teacher can transfer any file to all learners and even learners can submit their assignment through file which gets stored in a particular location of the teacher machine which the teacher can go through anytime.
- The teacher can play study related movie on her machine which can be broadcasted to all the learners' screen.
- The teacher can divide the learners into groups and can have group discussions online.
- They can communicate to each other by sending messages and by one to one voice chat also.

Internet

- Internet is an open no participatory computer communication infrastructure that reaches every corner of the world carrying information on every topic irrespective of any field.

- Also known as 'Information Superhighway'.

- The internet has grown up and evolved as an open system where individuals and organisations can join and become online.

- Several bodies look after the technical standards in terms of technology of the internet (like VSNL in India).

- The learners can access and use resources available on the internet as per one's own convenience.

- Easy access to the latest information along with recent researches done on same topic.

- Web-based materials are easy to update, providing student access to current information.

- Provides a student- centered learning environment.

Wireless technology

- It allows the learner to access information at their convenience. E. g. Bluetooth with which a learner can access internet connection.

- Skype

- It is software that allows one to talk to people over the computer provided both of them have good internet connection, microphone and headset.

- Podcasting

- It is a method of distributing multimedia files, such as audio programs or music videos for playback on mobile devices and personal computers. Podcasts are digital recordings stored in a music file which can then be uploaded to a computer.

- Wiki

- It means 'what I know is' which describes the knowledge contribution, storage, and exchange. Content displayed on a wiki can be constantly modified as it is updated. It is useful for class materials.

Weblogs

- A weblog is a website where entries are commonly displayed with possibility to maintain, add or edit content on regular basis. It allows teacher to communicate with students and parents as they can log daily class activities and can share ideas, study materials, research findings etc.

Role of nurse in teaching technology

- Nursing educator can provide online classes in long distance.

- Nursing teachers can educate their student documentation of records in computers.

- Nursing educators can encourage shy students to adopt use of technology in learning.

- Nursing teachers can teach student effectively by making use of technology to enhance their learning.

- Clinical Nurse can make use of technology & learn various health related topics via internet & implement those on patients.

Technology in nursing practice (Part – I)

Mrs. Dipali Awate, Lecturer, MKSSS.BTINE.

Introduction:

Nursing is one of the proudest chapters in history of mankind.

Nursing is the noblest of noble professions. Nursing is as old as evolution of mankind, because the mother is the first nurse. Around the globe, in every setting, nurses seek to provide care to patients and families to keep them safe, heal them and return to the highest possible level of functioning.

Application of Technology in Health Care

- Prevention

Protect against disease by preventing it from occurring, reducing the risk of its occurrence, (e.g., immunization, hospital infection control programme, fluoridated water supply)

- Screening

Detect a disease, abnormality, or associated risk factors (e.g., Pap smear, tuberculin test, mammography, serum cholesterol testing)

- Diagnosis

Identify the cause and nature or extent of disease in a person with clinical signs or symptoms. (e.g., electrocardiogram, serological test for typhoid, x-ray for possible broken bone)

- Treatment

Designed to improve or maintain health status (e.g., antiviral therapy, coronary artery bypass graft surgery, psychotherapy, drugs for cancer pain)

- Rehabilitation

Restores, maintain or improve a physically or mentally disabled person's function and well –being (e.g., exercise programme)

Technology for changing health care better

- ❖ Improved communication :
- ❖ Portal technology:
- ❖ Remote monitoring
- ❖ Accelerated experimentation
- ❖ Mobile apps

❖ 3D organ printing

Positive Impact of Health Technology on Nursing Practice

- It improves patient care and information management.

- Empowering patients: due to new technologies, patients may now have more information, more control over scheduling appointments and more responsibility for monitoring their symptoms and outcomes.

- Changes in work place: new technologies may unable healthcare staff to work offsite, including in the community and even at their own residencies.

- It is time saving and improves nurses and patients satisfaction.

- Professionals do not automatically use them as intended by the developers. This means that a substantial proportion of patients / clients will not receive the intended caring such a way that they benefit from these innovations.

- Studies show that elements of technological environment contributed to nurse stress and fatigue.

- Many times, information technology systems are not designed to match the workflow of nurses.

- Telenursing lies in its inability to see or incorporate non-verbal behavior of patients that challenges assessment skills of nurses.

Technologies that Changed Nursing Forever

- Electronic IV monitors

- The Sphygmomanometer

- Information management

- The portable defibrillator

- Sturdy, portable IT devices

- Readily accessible base of information

- The sonogram/ultrasound

- Local wireless telephone networks

- Hands-free communication devices

- Communications options

- Patient remote monitoring

- RFID technologies

- Compact, portable medical devices

- Neo-natal nursing advancements

- Drug management technologies

- Configurable nursing environments

- Learning technologies

- Video conferencing

- The blogosphere

- **Electronic IV monitors**

There was a time when IVs had to be administered with a nurse's constant attention to ensure a steady flow. Manual IVs were highly sensitive to a patient's movement and the flow of the IV could be sped up or slowed to a crawl by a subtle movement. To prevent this, nurses had to directly administer an IV from beginning to start. With the advent of IV pump infusion and electronic monitoring, nurses are freed up to initiate an IV and allow a machine to monitor and regulate the process. If there is an error, the system tries to correct it, and otherwise contacts the nurse via remote monitoring.

- **The Sphygmomanometer**

The sphygmomanometer is simply a fancy term for electronic blood pressure cuffs that also measure heart beat rate automatically.

- **Information management**

As computer technologies become the primary means of managing patient information, nurses have had to adapt their record-keeping practices and increase their computer skills. Nursing informatics is a specialty that has emerged, combining IT skills and nursing science.

- **The portable defibrillator**

Manual CPR can only do so much and for the longest time this was the only method available to many nurses for reviving someone's heart. Now, even school nurses stand a fighting chance to save the life of a person whose heart has failed. The few minutes after heart failure are critical, and the portable defibrillator allows for immediate resuscitative action.

- **Sturdy, portable IT devices**

Tablet computers and mobile wireless computer stations are now a standard part of the day-to-day methods of delivering care to patients. Charts are updated continuously, in real time, providing nurses with immediate access to essential patient information.

- **Readily accessible base of information**

Wireless Internet connections quickly make reference materials available. This can prove very helpful for diagnosis, especially when using a resource like WebMD.

- **The sonogram/ultrasound**

Ultrasound devices provide nurses working with pregnant patients the ability to see inside the womb. Ultrasound has been nothing short of revolutionary in the field of Women's Health and pregnancy, allowing nurses and doctors to noninvasively identify the health of the baby throughout pregnancy. Now, with the advent of 4-D ultrasound, unprecedented detail is available for diagnosing fetal well-being.

- **Local wireless telephone networks**

Ultrasound devices provide nurses working with pregnant patients the ability to see inside the womb. Ultrasound has been nothing short of revolutionary in the field of Women's Health and pregnancy, allowing nurses and doctors to noninvasively identify the health of the baby throughout pregnancy. Now, with the advent of 4-D ultrasound, unprecedented detail is available for diagnosing fetal well-being.

- **Hands-free communication devices**

Hands-free devices such as Vocera's Call Badge provide the ultimate in communication while a nurse is engaged in active patient care or associated tasks.

- **Communications options**

It is not uncommon for patients and nurses (and doctors) to communicate via e-mail or even web cam; a practice that is becoming common for parents of children in neo-natal intensive care units.

- **Patient remote monitoring**

In addition to high-tech and ultra-sensitive vital signs monitoring equipment, web cams and other technologies make the close monitoring of multiple patients much easier, changing how environments are staffed and operated.

- **RFID technologies**

RFID-enabled devices make monitoring hospital assets easier, ranging from drugs and equipment to records and patients. They also enhance safety and security with less effort and lower long-term cost.

- **Compact, portable medical devices**

Combined with portable IT and communication equipment, these small, high-tech types of devices allow well-equipped nurses to take their skills on the road. They can travel to patients' homes and treat conditions that once had to be treated on an in-patient basis.

- **Neo-natal nursing advancements**

New, more affordable portable devices for the care of tinier and more health-compromised babies.

- **Drug management technologies**

High-tech systems of medication retrieval and delivery, such as bar coding and verification, have greatly reduced the potential for dangerous error. Infusion equipment advances have made the delivery of slow-administer drugs much easier, with computerized machines able to control dosages and rates.

- **Configurable nursing environments**

Configurable work spaces increases efficiency and safety, reduces stress, and prevents accidents and injuries.

- **Learning technologies**

The availability of individual and off-site learning opportunities and degree programs, via specialized software and online classes, allows for more rapid career advancement.

- **Video conferencing**

The ability to interact with nursing professionals throughout the world, through such means as video conferencing, offers advantages and opportunities like never before, both in terms of the further development of the nursing profession and the continued improvement in patient care outcomes**.**

- **The blogosphere**

Medical technologies have brought changes to the process of life and death and the role of the nurse. The Internet allows nurses to share their experiences and feelings. As technology transforms the profession, nurses adapt and change as well. The big question is: What will the rest of the twenty-first century bring?

Steps to Make India Healthy

- ❖ Every public and private health care facility must have defined coverage area and a known denominator to report state and national information system that is linked to the global health information.
- ❖ Every state must have a number of well-designed health programme (MCH, FP, TB, HIV/AIDS, NCD, Malaria, etc…) that are implemented through the state network of

healthcare facilities with the technical assistance of ministry of health and family welfare at the center.

❖ Every public and private health care facility must have defined coverage area and a known denominator to report state and national information system that is linked to the global health information.

❖ Every health care facility must have water and electricity and be staffed according to internationally accepted standards

❖ Every private facility must be accredited and made part of state and national health information system as well.

❖ Every state develops an appropriate cadre of primary health care providers to meet the needs of every citizen through public and private training institutions in accordance to the national health workforce development plan.

❖ Every health care provider will have a tablet and internet access and access to up to date clinical, management and health information. Every provider will be responsible for providing primary health care services to a defined population.

Technology and human touch

Touch is an excellent form of nonverbal communication. Touch conveys trust, hope, and reassurance to patients.

Technology in Nursing Practice –PART 2
Mrs. Ujwala Jadhav, Asst. Professor MKSSS.BTINE.

Introduction

- Health information technology promotes change in health information, protecting patients' privacy and developing ability of care in health care professionals.

- Nurses need information to care for patients safely. They need to be able to access medical histories, medication lists, lab, imaging results, and physician's notes to get a complete picture of a patient's clinical status. They use this information to make decisions efficiently to improve patient care outcomes.

- Nursing informatics is a field of nursing that incorporates nursing, computer and information sciences to maintain and develop medical data and systems to support the practice of nursing, and to improve patient health.

Technologies that have evolved in nursing informatics include:

- Computerized provider order entry (CPOE)
- Electronic medical records (EMRs)
- The use of computer and information technology to support an electronic health record (EHR) is quickly becoming a standard practice in health care. For nurses and other health-care team members, the use of computer technology provides quick access to important information about the health of the patient.

Health information technology (HIT)

- HIT is the application of information processing involving both computer hardware & software that deals with the storage, retrieval, sharing & use of health care information data & of knowledge for communication & decision making.

-Brailer & Thompson (2004)

Utilization of hit

- Improve health care quality
- Prevent medical errors
- Reduce health care costs
- Increase administrative efficiencies
- Decrease paper work

Personal Health Diet & Exercise
- Progress Notes
- Physician Orders
- Identification Sheet
- Exercise Tutor
- Vital Monitoring
- Biometrics

Medication
- Dosages/Timing
- Pictorial Instructions
- Refill Notification
- Monitor Medication Intake
- Pharmacy Locator

Rehabilitation & Specialists
- Progress Checks
- Scheduler
- Rehabilitation instructions
- Specialist Connectivity

Care Partners
- Primary Care Physician
- Home Health
- Community Services
- Behavioral Health
- Skilled Nursing Facilities

What types of computers and information technology do nurses use?

- Nurses use computers similar to those that we use at home or at work.

- In addition they use software programs specifically designed to support the work of nurses and other health-care team members.

- Nurses may also use a small hand held computer known as Personal Digital Assistants or PDAs.

- Health-care organizations may have a variety of computer devices in use –some are located at the reception desk or nursing station; others may be on carts or mounted on the walls throughout the organization.

- Mobile computers work from a wireless system which enables them to retrieve and store information remotely from the main computer.

- A mobile or handheld computer allows nurses to access your chart or record, view information, and make notes about your care from anywhere in their place of work.

- In some organizations, there is widespread use of computers as an important tool for all members of the health-care team. In other organizations, computers are just being introduced. • The use of computers for health-care organizations is increasing rapidly to support the use of an electronic health record and other related technological innovations.

Use of technology at different Levels

- Nursing Director
- Sister in charge/Head Nurse
- Staff Nurse

Staff nurse

A) Patient data

B) Patient care activities

A) Patient data

On admission nurses feed all details of the patient in hospital computer system.

It includes:

- Complete name/Age/Sex
- Address/Phone no.
- Family information
- Past medical and surgical history
- Previous treatment
- Any allergies

   ** This information will be long lasting and can be accessed all concerned health team members. Patient will get specific registration number through which this data can be accessed whenever needed.**

Benefits

- Easily available information about the patient which can be used in an emergency and whenever needed.
- This information can be stored on the long term basis or permanently.
- It can be accessed by all concern health team members through software.
- This can help for continue, prompt and proper treatment to the patient.
- It will save the time and gap between health team and patient and his relatives.

Patient care activities

- Admission/Transfer in- out/Discharge
- Pathology: Sending labs, Reports
- Ultrasound/X-Ray/CT Scans/MRI
- Drug : Issuing from pharmacy/Daily orders
- Diet plans
- Intake –output management
- Daily nursing activities: Vital signs/ Observation/Nurses notes

Admission/Transfer in- out/ Discharge (ADT)

- ADT system allows nurses to obtain basic biographical information on clients before they arrive to the unit. When a discharge or transfer is entered in the computer, all the

appropriate departments are automatically notified, thus saves many phone calls, information about beds and clients location on the unit is also readily available.

Pathology

- With the use of technology lab specimens are sent through the central system.
- Doctors will fill the lab prescription on line which will be accessed by the nurses as well as pathology department.
- Nurses and concerned doctors can see the reports on line as soon as they are ready.

Ultrasound/X-Ray/CT Scans/MRI

- As pathology, USG/X-ray/CT Scan/MRI orders are also directly sent to the appropriate department and patients' appointment will be given as early as possible.
- It will also give reminder alarm to notify the time as well as pro-procedure preparations.
- The images and the reports are seen on line as soon s they are available.

Drug Orders

- Drug Retrieval-and-Delivery Systems: These utilize several technologies, including bar codes and automated dispensing machines, to ensure patients receive the correct medications and dosages.
- While giving medications to the patient and while recording, six rights of the medication will be followed to prevent drug errors.

Diet plans

- As per disease condition of the patient certain software automatically plan the diet for the patient.
- In some hospitals nurse can notify the dietician through alarm system to plan a diet for her patient.

Intake –output management

The detailed information about intake like oral/I.V./Tube feeding is recorded.

The detailed information about output like drains/urine /vomits/tube aspirations /stool are recorded properly.

INTAKE-OUTPUT CHART								
Name	*Saloma Ishmael*			**Registration number**			*604321*	
Date	*27-07-2017*							
TIME	**INTAKE (ml)**				**OUTPUT (ml)**			
MORNING SHIFT	**Method**		**Site**		Urine	N/G Aspirate	Drains Stoma etc.	Stool B.O.
	Intravenous Infusion		*Peripheral vein left hand*					
07.00 a.m.	**Type of Fluid**		**Additions per bag**	**Amount**				
				Put up	**Gone in**			
	Normal saline in Dextrose 5 %		*1 gm KCl*	*500*				
9.00 a.m.						*250*		
9.05 a.m.							*32*	
					500			
12.00 noon	*Dextrose 5 %*		*Nil*	*500*				
1.00 p.m.							*22*	
1.30 p.m.						*150*		*BO x 1*
1.50 p.m.					*200*			*25*
2.00 p.m.			**Remainder**	*300*				
			Total at end of shift	*700*		*400*	*64*	*26*

Daily nursing activities

- All the nursing activities like vital signs/basic hygienic care/pressure point care/exercises are recorded.

Patient Education

The nurse can access the information for the patient or teach the patient where to find appropriate and helpful information.

For example, on an oncology unit, nursing informatics can be used to teach patients effective symptom management of the treatment modalities which often cause pain, fatigue and poor nutritional status.

Nursing informatics can also aid in other nursing interventions of the oncology nurse, such as analgesic administration and stress-reduction techniques.

Benefits

- Saves time
- Saves Manpower
- Prevents Human Error
- Facilitates prompt treatment to the patient

Sister-in-charge

A) Staff data

B) Patient data

C) Ward/Floor data

Staff data

- She can have complete staff data in her ward.
- Duty schedule: Weekly/Monthly
- Leave record
- Plan for staff education programmes

- Incidental reports

Patient data

- Complete patient list admitted in her floor with every details of each patient
- This data can be applied to treatments, diagnostics, documentation, practice management, insurance claims and referrals and protocols as well as treatment and diagnostics results.

Ward/floor data

- Indenting: Centralized indent/Special indent
- Stock verification
- Mechanical support system

Nursing director

- Storage & retrieval of clinical & statistical data
- Educational materials
- Care audit
- Research
- Automated staff scheduling.
- E-mail for improved communication.
- Cost analysis and finding trends for budget purposes.
- Quality assurance and outcomes analysis.

Innovations in technology

- Machine learning
- Clinical alert system
- Telehealth
- Clinical information

Machine learning

- Machine learning is a field of computer science that gives computer systems the ability to "learn" (i.e. progressively improve performance on a specific task) with data, without being explicitly programmed.

Clinical Alert System

The computerized clinical alert system can be used in conjunction with the hospital pharmacy. A system design is created to alert both pharmacy and health staff when two or more drug prescriptions are incompatible.

- Machine learning tasks are typically classified into two broad categories, depending on whether there is a learning "signal" or "feedback" available to a learning system:

- ◉ Supervised learning: The computer is presented with example inputs and their desired outputs, given by a "teacher", and the goal is to learn a general rule that maps inputs to outputs. As special cases, the input signal can be only partially available, or restricted to special feedback:

- ◉ Semi-supervised learning: the computer is given only an incomplete training signal: a training set with some (often many) of the target outputs missing.

- ◉ Active learning: the computer can only obtain training labels for a limited set of instances (based on a budget), and also has to optimize its choice of objects to acquire labels for. When used interactively, these can be presented to the user for labeling.

- ◉ Reinforcement learning: training data (in form of rewards and punishments) is given only as feedback to the program's actions in a dynamic environment, such as driving a vehicle or playing a game against an opponent.

- ◉ Unsupervised learning: No labels are given to the learning algorithm, leaving it on its own to find structure in its input. Unsupervised learning can be a goal in itself (discovering hidden patterns in data) or a means towards an end (feature learning).

Telehealth:

- Telehealth includes the use of telephones and sophisticated image transmission systems like ECG, faxes and remote camera imaging.

- In India it can be used in community set up where 24hrs doctors are not available.

- Telehealth places the ambulance personnel in touch with the Emergency Department and it also operates to put the generalist "nurses and doctors" at the ED in touch with specialists.

- Telehealth is used to evaluate the stroke victims while they are in transit so appropriate therapy can be initiated quickly upon arrival at the ED.

- In similar fashion, a nurse practitioner in a remote ED might be guided via telephone in the proper procedure for inserting chest tubes so a man with a collapsed lung could be stabilized for subsequent transport to a major hospital.

- In short, nursing informatics can be useful for interdepartmental communication such as ordering supplies from central supply, lab work, etc.

Clinical Information

In order for the nurse to ensure the patient is receiving the most up-to-date care for a variety of chronic conditions, the National Institute of Health (NIH) have an agency designed to offer such guidance.

Ethical and Legal Issue in Nursing Related to Technology

Ms. Lisham Smita Devi, Asst. Professor

Introduction

- Ethical issues had been known to cause distress among the nurses, resulting to decreased job satisfaction and increased turnover intention (Hart, 2005).
- This is especially problematic when the ethical concerns have some legal consequences.
- Legal and ethical intertwined in many ways, but the two entities are distinct bodies of thought and practice.
- Ethics and laws both derive from societal values.
- Nursing practice is governed by many legal concepts.
- It is important for nurses to know the basics of legal concepts, because nurses are accountable for their professional judgments and actions.

Definitions

- Ethics is a branch of philosophy that involves clarification of the "should" and "ought'" of individuals and society.
- Ethics is a philosophy based on moral values and reasoning.
- Law is defined as the sum total of rules and regulations by which a society is governed.

Legal issues of nursing practice

- In the course of your activities as a student and later as a licensed nurse, you are held responsible for maintaining established standards of nursing care. You will encounter many situations involving legal responsibilities. In addition to avoiding those acts that all citizens know are illegal, you must not violate other important laws that are specific to healthcare.
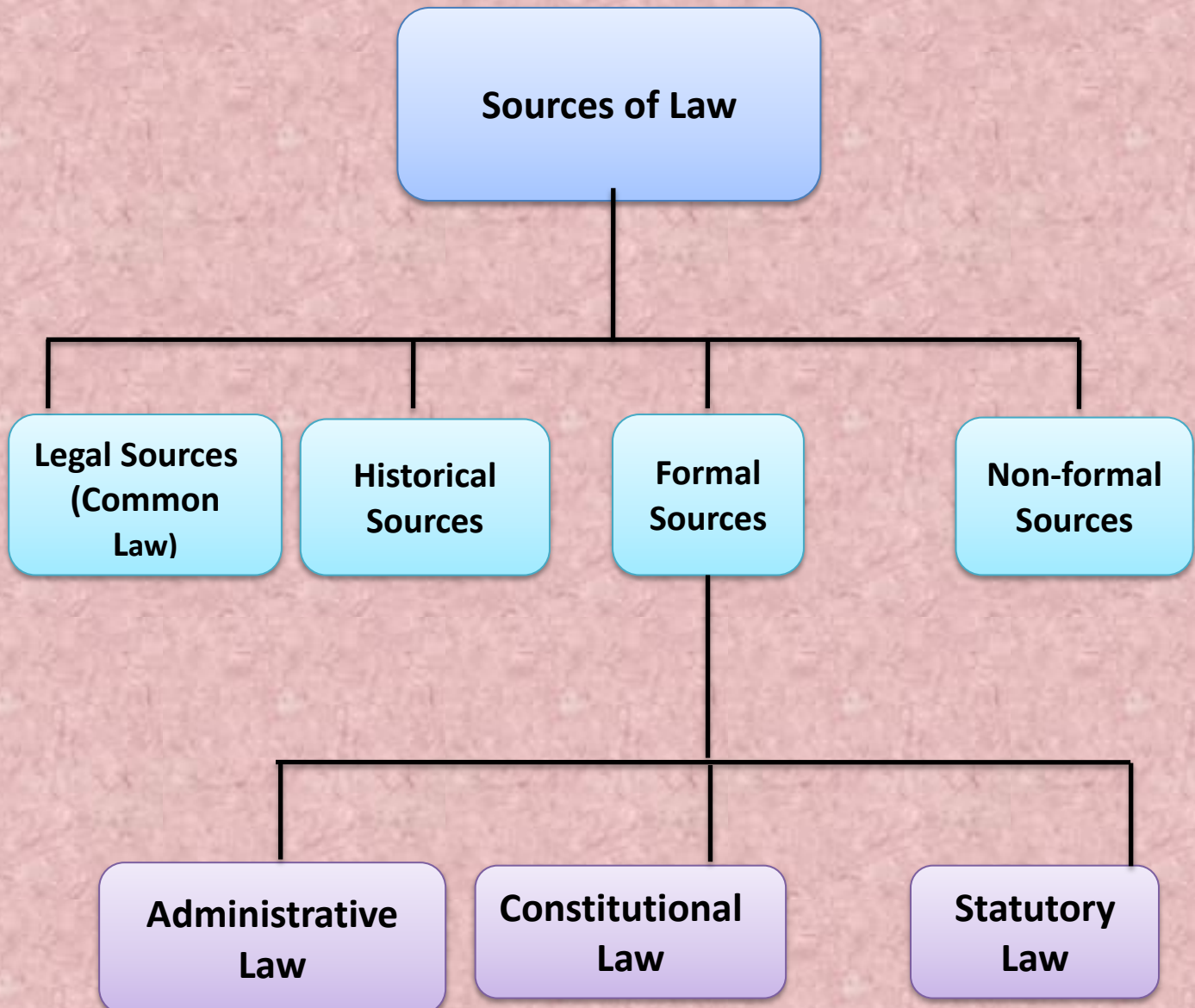
Law:

- Law may be defined as "the principles and regulations established in a community by some authority and applicable to its people whether in the form of legislation or of custom and policies recognized by judicial decision."
- Law is standard or rules of conduct established & enforced by government.
- Legal issues in nursing are those in which a person led to face legal problems in which nurse face problem when not meeting proper patient care.

Functions of law in nursing

- It provides a framework for establishing which nursing actions in the care of clients are legal.
- It differentiates the nurse's responsibilities from those of other health professionals.
- It helps establish the boundaries of independent nursing action.
- It assists in maintaining a standard of nursing practice by making nurses accountable under the law.

Sources of law

```
                        Sources of Law
                              |
  ┌─────────────┬─────────────┴───────────┬─────────────┐
Legal Sources   Historical            Formal         Non-formal
(Common Law)    Sources               Sources         Sources
                                        |
              ┌─────────────────────────┼─────────────────────────┐
        Administrative            Constitutional              Statutory
            Law                       Law                       Law
```
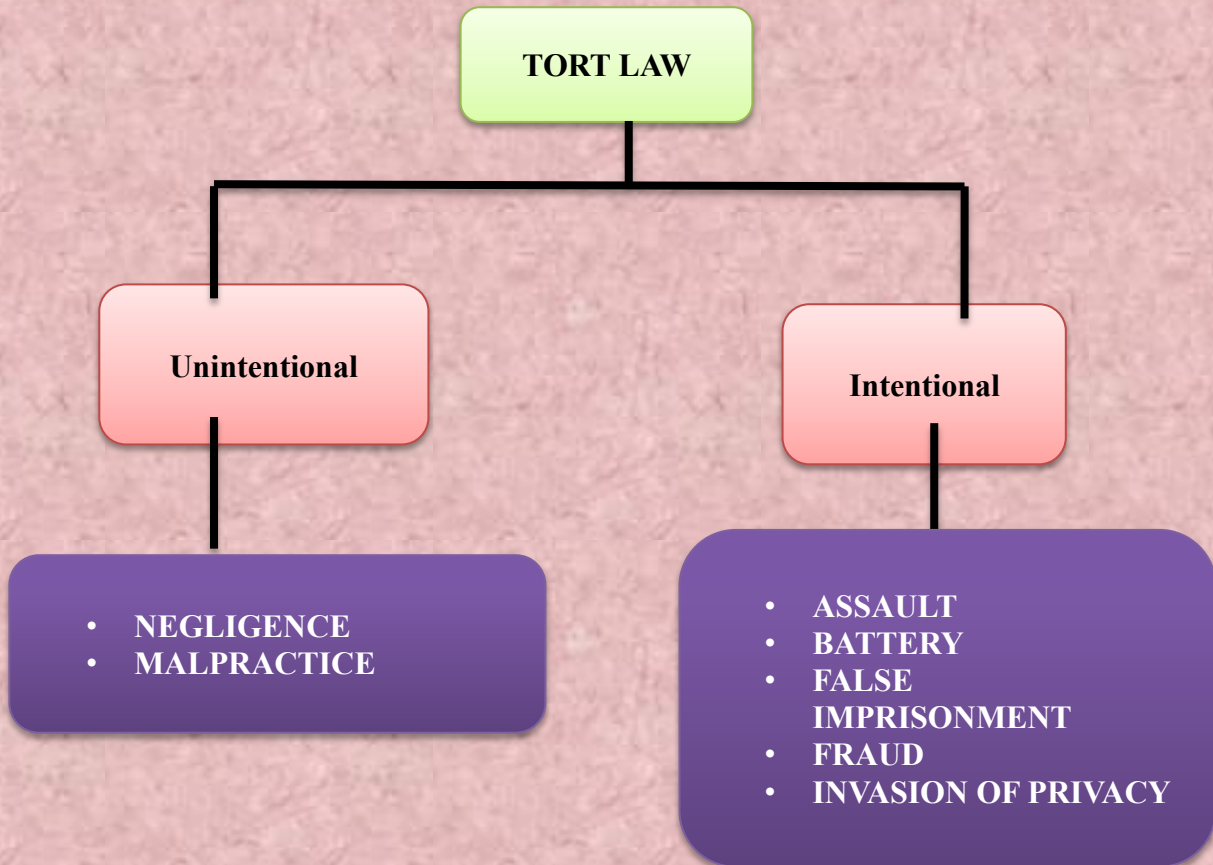
TYPE OF LAW	GENERAL PURPOSE	EXAMPLE OF LAW
Constitutional	Law written as part of a local, state, or federal constitution	Protection of right to free speech
Statutory	Any law enacted by a legislative body	Creation of Nurse Practice Act
Administrative	Empowers agencies to create and enforce rules and regulations	Development of State Boards of Nursing
Criminal	Laws that define offenses that violate the public welfare	Prosecution of violation of provisions of Nurse Practice Act
Civil	Protects civil rights such as freedom from invasion of privacy and freedom from threats of injury	Healthcare client charges nurse with invasion of privacy and violation of confidentiality laws

Categories of laws affecting nurses

- Constitutional: due process and equal protection
- Statutory: nurse practice act, good Samaritan act, child and adult abuse laws, living wills, sexual harassment laws
- Criminal law: homicide, theft, active euthanasia, sexual assault, illegal possession of controlled drugs.
- Contracts law (private or civil law): nurse and client, nurse and employer, nurse and insurance, client and agency
- Tort law (private or civil law): negligence and malpractice, libel and slander, invasion of privacy, assault and battery, false imprisonment, abandonment.

Tort

- A tort is a civil wrong or injury for which the court provides a remedy in the form of money damages (black,1999)
- Intentional torts
- Unintentional torts

```mermaid
graph TD
    A[TORT LAW]
    A --> B[Unintentional]
    A --> C[Intentional]
    B --> D[• NEGLIGENCE<br/>• MALPRACTICE]
    C --> E[• ASSAULT<br/>• BATTERY<br/>• FALSE IMPRISONMENT<br/>• FRAUD<br/>• INVASION OF PRIVACY]
```

TORT LAW

Unintentional
- NEGLIGENCE
- MALPRACTICE

Intentional
- ASSAULT
- BATTERY
- FALSE IMPRISONMENT
- FRAUD
- INVASION OF PRIVACY

Negligence & malpractice

- Negligence is conduct that falls below the standard of care.
- Malpractice is one type of negligence called professional negligence.

Common sources of negligence & malpractice

- Medication errors that result injury to patient.
- Burns caused by equipment or spills of hot liquids.
- Falls resulting in injury to patients.
- Errors in sponge, instrument, needle, count in surgery cases.
- Failure to give adequate report, notify physician, adequate monitoring the patient.

Assault

- Assault is any intentional threat to bring about harmful or offensive contact with another individual, no actual contact is necessary
- Eg. Threatening a patient to give an injection.
- Restrain a patient for an x-ray procedure when the patient has refused consent

Battery

- Battery is an intentional touching without consent, the contact is harmful to the patient and causes an injury, or it is merely offensive to the patient dignity
- Eg. Giving an injection without patient consent.

- A patient gives consent for left knee repair but the surgeon performs right knee surgery.

False imprisonment

- Making a person stay in pace against his wishes is false imprisonment
- Eg. Restraining or confining a patient to a locked room without proper consent could constitute false imprisonment

Fraud

- Fraud is a willful and purposeful misrepresentation that could cause or caused harm to a person or property
- Eg. giving incorrect information to obtain a better position or job

Invasion of privacy

- Clients have claims for 'invasion of privacy' e.g. their private affairs, with which the public has no concern, have been publicized. E.g. in case of poison case.

Legal safeguard for the nurses

- Informed consent informed consent is a patients agreement to allow something to happen, such as surgery based on a full disclosure of risks, benefits alternatives and consequences of refusal (black, 1999)
- Documentation
- Executing physicians order
- Good Samaritan law
- Patient education
- Privileged communication

Legal issue related to nursing

- Confidentiality
- Advance directive
- Autopsies
- Organ and tissue donation

Ethics in Nursing

- The word ethics derived from the Greek term ethos, which means 'customs`
- Ethics can be defined as a branch of philosophy that involves systematizing , defending and recommending concepts of right and wrong conduct, often addressing deputes of moral diversity (Wikipedia)

Ethical principles

- Autonomy
- Beneficence
- Non-maleficence
- Fidelity
- Justice
- Veracity

Legal and Ethical Implication of Technology

- **Legal issues in Electronic Health record:**
1. **Invasion of privacy and confidentiality** are of critical legal and medical concern.
- Computers are excellent tools for nurses, but they can be a source of loss of confidentiality for clients.

Privacy

- Who has control of what goes into the record?
- Who has access?
- Who should have access? In what circumstances and for what purposes?
- What penalties for breaches?
- The right to privacy means that a client has the right to expect that his or her property will be left alone.
- Healthcare individuals may be charged with trespassing, illegal search and seizure, or releasing private information (even if the information is true).
- Remember, you are violating the law if you give out any information about a client without his or her written consent. Also, prevent clients and visitors from seeing other clients' health records and private information.
- For example, be careful not to pull client information onto the computer screen where other clients can see.
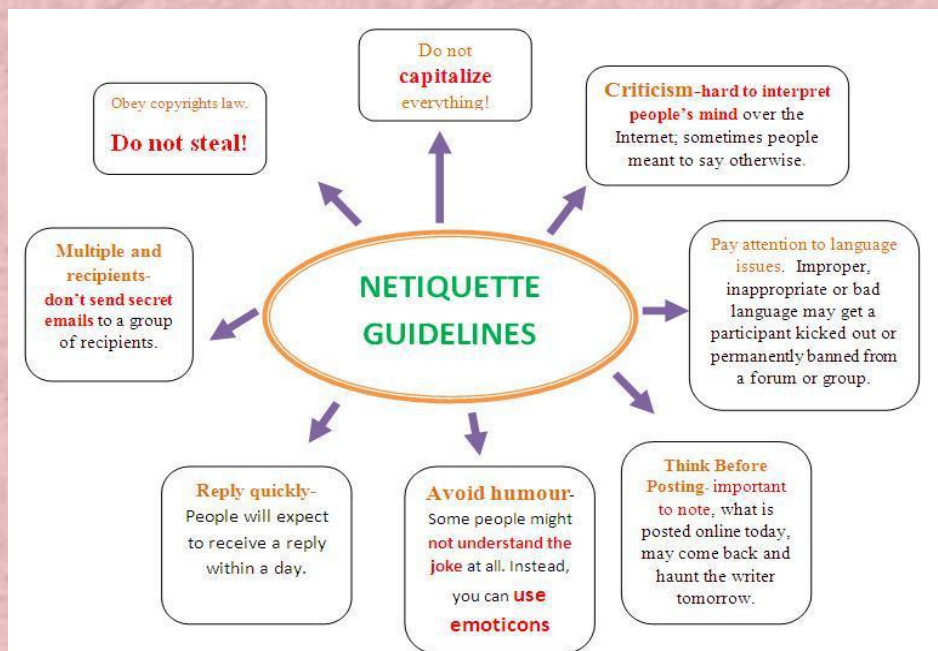
Data security: SECURITY BREACHES

- Security measures such as
- firewalls,
- antivirus software, and
- Intrusion detection software must be included to protect data integrity.
- **Security loopholes**
- Weak passwords;
- Software bugs;

- Lack of security awareness;
- Weak or non-existent anti-virus programs.
- Specific policies and procedures serve to maintain patient privacy and confidentiality. For example, employees must not share their ID with anyone, always log off when leaving a terminal and use their own ID to access patient digital records.
- A security officer must be designated by the organization to work with a team of health IT experts.
- Routine random audits should be conducted on a regular basis to ensure compliance with hospital policy.
- All system activity can be tracked by audit trails.
- This includes detailed listings of content, duration and the user; generating date and time for entries and logs of all modifications to EHRs.
- When there is inappropriate access to a medical record, the system can yield information about the name of the individual gaining access; the time, date, screens accessed and the duration of the review.
- This information is useful when determining whether the access is the result of an error or an intentional, unauthorized view.
- **Data transmission:** Telemedicine relies on transmitting data.
- Hacking / cyber-attack: **Hacking is identifying weakness in computer systems or networks to exploit its weaknesses to gain access**. Example of Hacking: Using password cracking algorithm to gain access to a system
- **Ethics of healthcare robotics**
- Replacement and its implications for labour
- Replacement and its implications for the quality of care: de-humanization and "cold" care.
- Autonomy.
- Role and tasks.
- Moral agency.
- Responsibility.
- Deception.
- Trust.
- Privacy and data protection.
- Safety and avoidance of harm.
- Technology in Education: The Legal, Social and Ethical Issues

Ethical Issues for Safety and Security

- Social networking
- Acceptable Use Policies
- Netiquette
- Cyber Bullying
- Internet Privacy
- Social networking
- "Social Networking" = MySpace, Facebook, etc.
- The use of dedicated websites and applications to interact with other users, or to find people with similar interests to one's own.
- Privacy
- Free speech
- Data Leakage
- Identity Theft
- Acceptable Use Policies
- Includes not giving out personal information, not participating in off-line meetings or activities, and privacy expectations.

Netiquette: Internet etiquette

Cyber Bullying

- Internet Privacy

- If In Doubt, Throw It Out
- Stay Updated
- Think Before You Act
- Privacy Settings
- Blocking Cookies
- Unlinking Accounts
- Secure Connections, Firewalls and Antivirus Services
- Stronger Passwords
- Better Browsing

Legal Use of Digital Media

- Copyright
- Fair Use
- Creative Commons

Copyright

- Copyright is "the legal right of authors to prohibit others from copying their work"

Fair Use

- A "doctrine in copyright law that allows limited use of copyrighted material without requiring permission from the rights-holder. It provides for the legal incorporation of copyrighted material into another work under limited conditions"
- Incorporates four factors: the purpose of use, the nature of the work, the portion used, and the effect on the market.

Creative Commons

- Is "a set of licensing tools that stands between the All Rights Reserved of traditional copyright and No Rights Reserved that is the public domain"
- Applies to text, blogs, music, audio, recordings, podcasts, photographs, videos, songs, websites, and films found on the Internet

THE END!!!!

Maharshi Karve Stree Shikshan Samstha's
SMT. BAKUL TAMBAT INSTITUTE OF NURSING EDUCATION
Karvenagar, Pune-411 052. Telefax: 25475020, 25477557
E-mail: admin@mksssbtine.ac.in, btine03@gmail.com
Website: www.mksssbtine.ac.in