



Bulletin of GSMC MUHS International Chair Bioethics Unit  
October 2023



**Theme : 2023**

**“Sustainable Medical Technologies for future”**

Seth G S Medical College and KEM Hospital, Parel, Mumbai -12  
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# GSMC - MUHS International Chair Bioethics Unit Poster Competition



**First Prize**

**Laxmi Maurya - 1st Year MBBS**

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- Funding Support** : **Brihanmumbai Municipal Corporation (BMC)**
- Printer Details** : **Manisha printers, 10, Jehangir Building, Near  
Bachooally Eye Hospital, Opp. KEM Hosp. J. Merwanji  
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## Introduction

Advances in biomedical sciences have made ethical lens imperative for medical practitioners, researchers and society at large so that adherence to moral values of beneficence, justice, autonomy in medical practice and research are upheld.

Warren Reich's encyclopedia of Bioethics defines Bioethics as '*an area of interdisciplinary studies*' concerned with systematic study of human conduct in the area of life sciences and health care. Dr. James Drane calls the discipline paradigmatic because the dilemmas force the scholars to examine the essential life and death questions in the context of medical conditions. Scholars from diverse disciplines like philosophy, theology, sociology, law, biomedical sciences alongside medicine have contributed to development of the field. With their contributions to the development of bioethics core principles since 1960s, these streams have been instrumental in guiding medical practitioners towards rights based approach to health. So in way it is a union of the two trees of knowledge- humanities and philosophy on one side and medicine and biosciences on the other; that leads to growth of an integrated approach towards not only human but also environmental well-being and growth.

The Oxford dictionary defines the word '*Inarch*' as a plant graft created by connecting a growing branch without separating it from its parent stock. The term conveys the spirit of synergy between the two streams. Hence we chose this name for our bulletin which will bring to you articles on bioethical issues by medical faculty, students, ethicists, philosophers.

Our bulletin is intended for undergraduate, postgraduate students in medical, paramedical subjects and nursing as well as practitioners and teachers. It aims to open up discussion on ethics of practice, research, curriculum content and advances in biomedical sciences.

GGG



GSMC MUHS International Chair Bioethics Unit.

Seth G. S. Medical College and K. E. M. Hospital, Mumbai, Maharashtra, India



**NURTURING ETHICAL VALUES.....  
ENRICHING MEDICAL EDUCATION.**

**Vision :**

*“Establishing highest level of ethical and professional standards in health professionals education, practice and research.”*

**Mission:**

*“To inculcate the basic ethical, professional and humanitarian values in medical students right from the first day of training in order to make them not only expert clinicians but also compassionate human beings.”*

The 'GSMC-MUHS UNESCO Bioethics Unit' was formed in the month of August 2015. The solemnisation of the Unit under the MCGM Nodal Bioethics Unit and affiliation with UNESCO, Chair in Bioethics Haifa Australia was on 9th November 2015. The MCGM nodal unit was established at an event held in Topiwala National Medical College auditorium.

The objective of Bioethics Unit is to integrate the MUHS approved UNESCO Bioethics curriculum in the undergraduate and postgraduate students education and to train the faculty in effective implementation of the same.

1. To introduce and deliver bioethics and professionalism training in undergraduate and postgraduate curriculum.
2. To prepare an updated and modern curriculum, reflecting the need for integration of ethics during the training period and for its effective implementation in clinical practice.
3. To increase interest and respect to values involved in health care delivery and raising awareness for competing interests. To introduce various non-medical facets of medicine: sociology, economics, and public administration to students.
4. To add new chapters to present curriculum that will relate to new dilemmas, accommodating medical, technological and scientific progress.
5. To create training programs for teachers and instructors of ethics in medical institution.
6. To initiate, collaborate, facilitate and participate research related to bioethics.

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## Editorial



### **Sustainable medical technologies for future - Protecting future generations**

Healthcare systems exist to serve, protect and improve public health; however, they can have negative effects on human well-being and the environment. Therefore, sustainability is an important target in a rapidly changing healthcare environment. The present INARCH has tried to portray the state of the art in research on healthcare and sustainability by exploring literature on different healthcare systems and their relations with the environment.

The articles presents conceptual and practical developments regarding sustainability, as well as an overview of their evolution in the healthcare sector over time. It also discusses how sustainability could be applied to reduce the environmental impact. So, faculty from pre, para, clinical and occupational therapy along with nursing departments have tried to present their view point. The aspects covered are; Pharmacology (drug development), Anatomy (genetics), Psychiatry (mental health), Obstetricians (infertility, Intergenerational Ethics and Solidarity) and medical education by others. The bioethics principles cannot be left out in vogue of development. So the basic tenets of bioethics - autonomy, beneficence, non-maleficence and respect needs to be followed in any and all situations. All are striving to use and ensure the resources are used efficiently and responsibly. Finally, everyone wants to pledge how medical fraternity can contribute to a sustainable healthcare system through integration of innovation and emerging technologies while providing high-quality services to patients and caregivers.

So, we should keep in mind that development that meets the needs of the present should not compromise the future generations needs

### **Dr. Yashashri Shetty**

Head, Steering Committee of Bioethics

Seth G.S. Medical College & KEM Hospital





## Municipal Corporation of Greater Mumbai

Seth G S Medical College and K E M Hospital, Parel, Mumbai



Dr. Sangeeta Ravat

I write for the present publication of INARCH with a lot of pride. The twin institutes are involved in all aspects of technological development in medical education, health care sector and research

This time theme of world bioethics day is: **"Protecting Future Generations"**. We are doing a great work in this direction.

The plantation of trees with an intention of providing green environment to the entire health care sector working in the campus. Similarly Biomedical waste management is doing a great job in eliminating waste after appropriate segregations

Newer diagnostic modalities and Complex interventions are performed in cardiology, starting Vascular Lab to train cardiac surgeons by cardiothoracic surgeons. Newly installed Multi-platform LASER for patient care in dermatology, Special Cold Storage Facilities for Facilitating Cadaver Retrieval Training Workshops by forensic medicine department, so to name a few. Technological innovations were part of the heritage ingrained in the campus, but while dealing with this, we have to remember the impact on the environment and its long term sustainability for the future generation

I congratulate the bioethics unit of KEM for striving hard to educate the campus by conducting different activities (poster competition, essay /slogan writing and guest lecture) to support the theme of protecting the future generations.

*S.R.*  
11/10/23

Dr. Sangeeta Ravat,  
Dean,  
Seth G.S. Medical College &  
K.E.M. Hospital.



## Municipal Corporation of Greater Mumbai

Seth G S Medical College and K E M Hospital, Parel, Mumbai



Dr. Harish Pathak

I write for the present publication of INARCH with a lot of enthusiasm. The twin institutes are involved in all aspects of technological development in medical education, health care sector and research

This time theme of world bioethics day is: **“Protecting Future Generations”**. Increasing awareness about sustainability in healthcare from a holistic point of view is well done by the bioethics wing of KEM Hospital.

Maintaining a sustainable healthcare system while providing high-quality, effective, and safe healthcare is a major economic and social challenge for healthcare services and consumers.

The world is aiming to achieve “Zero Carbon Hospitals with Renewable Energy Systems”. This is dream everyone seeks to achieve, but we are still very far away from it.

This initiative incentivizes the pursuit of sustainability in healthcare structures and promotion of environment-friendly attitudes among all healthcare stakeholders, which can benefit the whole system.

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## Warning

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I am the face of your future generation,  
Astonished and afraid beyond imagination!  
My forefathers keep adding to my woes,  
Damaging my prospects; are you my foes?

Atomic weapons on your backyard,  
Are turning the earth into a graveyard.  
Contaminated water, soil and air;  
Deadly, poisonous, will make me despair.

I heard you are seeking a new frontier,  
On the Moon, the Mars and everywhere!  
Paying exorbitantly for the capsules of Alcor,  
Don't you know it's only gore?

Give up your greed, be sensible  
Clean up your act, be accountable  
I don't think I need to remind;  
There's no planet B, do you mind?



## Sustainable Healthcare Practices for the Future: A Pharmacologist's Perspective

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### Introduction

Sustainable healthcare is no longer a buzzword but a pressing necessity. As we navigate the challenges of the 21st century, pharmacologists find themselves at the forefront of a revolution in medical technologies that prioritize sustainability. This article explores the critical role that pharmacologists play in shaping the future of healthcare through sustainable practices.

### Sustainability Challenges in Healthcare

The pharmaceutical industry which is one of the major pillars of the healthcare sector faces several sustainability challenges as it strives to balance the ever-increasing demand for innovative medicines. These challenges are driven by a combination of environmental, social, and economic factors.<sup>[1]</sup> As responsible stewards of public health, pharmacologists are increasingly recognizing the need for eco-conscious solutions to some of the key sustainability challenges.

**1. Resource Intensive Research and Development (R&D):** Developing new drugs requires substantial resources, including energy, water, and raw materials. The energy-intensive processes involved in drug discovery, clinical trials, and manufacturing contribute to greenhouse gas emissions and high carbon footprints.<sup>[2]</sup>

**2. Pharmaceutical Residues in the Environment:** The disposal of unused or expired medications by consumers and healthcare facilities can lead to the presence of pharmaceutical residues in the environment. For example, the active pharmaceutical ingredients (APIs) flowing downstream of the production sites contaminate the surface water and can have a severe impact on the aquatic ecosystems.<sup>[3]</sup> With limited sanitation and sewage treatment in low- to middle-income countries (LMICs), there is an increase in the environmental burden of human pharmaceuticals thereby posing a significant sustainability challenge.<sup>[2]</sup>

**3. Waste Generation:** Pharmaceutical manufacturing generates significant amounts of waste, including hazardous waste, solvent emissions, and unused or expired drugs. Excessive packaging and single-use plastics in pharmaceutical products contribute to plastic pollution.<sup>[2]</sup>

**4. Supply Chain Sustainability:** The global supply chain for pharmaceuticals involves the transportation of raw materials and finished products across long distances. Reducing the carbon footprint of this supply chain is a challenge, but it's essential for sustainability.

**5. Lack of equitable access** to essential medicines worldwide due to cost barriers and supply chain issues is a major social sustainability challenge, especially in low-income countries.<sup>[1]</sup>

**6. Counterfeit Drugs:** Counterfeit and substandard drugs not only pose health risks but also contribute to environmental and economic problems.

**7. Ensuring transparency** in clinical trials, pricing, and marketing practices is another hurdle in terms of social sustainability.

**8. Antibiotic Resistance:** Overuse and misuse of antibiotics contribute to antibiotic resistance, which poses a significant threat to global health. Developing new antibiotics while promoting responsible antibiotic use is a complex sustainability issue.

### Role of Pharmacologists in Sustainable Healthcare Practices

Pharmacologists bridge stakeholders to align with sustainability goals. Sustainable drug development aims to reduce environmental and social impact while maintaining safety and efficacy standards.

#### 1. Sustainable drug development practices

**Green Chemistry Principles:** The recent drug discovery and development processes have started adapting the GREENER concept, a “benign by design” approach that takes into account both the

natural environment as well as patient health.<sup>[2,3]</sup> These proposed criteria have been investigated by several pharmaceutical companies, in collaboration with academia and authorities, including the European Commission, to reduce the environmental impacts of APIs and other drug constituents after patient use. It includes criteria like effect reduction by avoiding non target effects or undesirable moieties, exposure reduction via lower emissions or improved environmental (bio)degradability, no PBT (persistent, bio-accumulative, and toxic) substances, and risk mitigation.<sup>[2]</sup> This GREENER concept is a tool to promote consideration of drug properties related to environmental risk in early drug discovery, where large numbers of molecules are screened in high-throughput assays and *in silico* models. After hit selection, high-throughput assays for measuring environmentally relevant endpoints may be used. Some of these tools already exist e.g., fish cell line acute toxicity assay, OECD Test Guideline 249, and computer models to estimate biodegradation.<sup>[2]</sup>

**Resource conservation:** Sustainable drug development emphasizes resource conservation by prioritizing drug candidates with a higher likelihood of success and optimizing research and development processes to reduce waste. Pharmaceutical companies can reduce their carbon footprint by optimizing energy use in research laboratories, manufacturing facilities, and distribution processes. For example, energy-efficient biotechnologies with computer-aided designs can help identify and isolate specific synthetic pathways.<sup>[1]</sup>

Pharmacologists can explore solvent-free or low-solvent approaches to drug manufacturing, minimizing the environmental impact. Some of the methods include supercritical fluid extraction (SFE) using CO<sub>2</sub> as an alternative to organic solvents, the use of ionic liquids, microwave-assisted reactions, and solid-phase synthesis.<sup>[4]</sup>

Pharmacologists can also work with manufacturers to reduce the use of single-use plastics in drug packaging and medical devices. Packaging material can be switched from non-biodegradable plastics to plastic from sugarcane or corn, for example, which completely degrades in about a decade. Biodegradable polyvinyl chloride (PVC),

polycaprolactone (PCL), polybutylene adipate terephthalate (PBAT), and polylactic acid are all being explored as potential alternatives to plastic.<sup>[5]</sup>

## 2. Ethical Considerations

Any sustainability practice extends beyond environmental concerns. Pharmacologists, with their expertise in drug safety and efficacy, play a crucial role in upholding ethical standards such as equitable access to medicines, uncompromised treatment quality, fair pricing of products, and conducting responsible clinical trial practices. This is possible by obtaining informed consent, ensuring diversity in trial participants, and conducting trials in a way that respects local communities and cultures. From an ethical point of view, adopting and developing alternative testing methods reduces the need for animal testing e.g., promoting the use of *in vitro* assays, organ-on-chip technology, and computational modelling to replace traditional animal testing.

## 2. Lifelong Product Stewardship

Conducting a life cycle assessment of a drug's environmental impact, from raw material extraction to disposal, can help identify areas where sustainability improvements can be made.

Founded on product stewardship principles, the Eco-Pharmaco-Stewardship (EPS) initiative has been developed in Europe.<sup>[6]</sup> It considers the entire life-cycle of the medicine and addresses the roles and responsibilities of all parties involved including public services, the pharmaceuticals industry, environmental experts, doctors, pharmacists, and patients. However, pharmacologists hold the key to this interdisciplinary collaboration and facilitate teamwork to tackle complex environmental issues.

## 3. Collaboration, Data Sharing, and Regulatory Compliance

Pharmacologists play a critical role in facilitating collaborations with stakeholders, including governments, pharmaceutical companies, research institutions, and regulatory agencies. Advocating for transparent data sharing is important for building trust, and accountability and avoiding duplicative research efforts.

## 4. Antibiotic Stewardship

While the primary goal of any antibiotic stewardship program is to improve patient outcomes and combat antibiotic resistance, pharmacologists contribute to sustainable stewardship practices by identifying overuse/misuse of antibiotics in clinical practices, encouraging the use of narrow-spectrum antibiotics, and participating in the surveillance of resistance patterns.

### 5. Personalized Medicine

It is important to highlight the role of pharmacologists in the field of personalized medicine, which is transforming patient care through tailored treatments based on an individual's genetic and lifestyle factors. This transformative approach can reduce trial-and-error prescribing, minimize adverse effects, and reduce the unnecessary production of pharmaceuticals.<sup>[7]</sup> Some key aspects of the involvement of pharmacologists include

- | Development of targeted therapies by identifying and validating drug targets based on genetic and genomic data.
- | Incorporating genetic and metabolomic markers into the drug discovery phase to stratify patients according to disease risk and optimal drug therapies.<sup>[1]</sup>
- | Dosing optimization for individual patients based on genetic profiles
- | Designing clinical trials that select patients based on specific molecular/ genetic criteria helps in ethical resource allocation.

### 6. Sustainable Drug Delivery Systems

Pharmacologists are exploring sustainable drug delivery systems that enhance treatment efficiency and minimize waste.

- | Single-use drug delivery devices can be designed to keep contaminated parts separate to maximize reusability and recyclability. For example, subcutaneous auto-injectors for insulin delivery or longer-term implantable devices.<sup>[8]</sup>
- | Paper waste can be reduced by switching from insert instructions/marketing materials to smart labels and augmented reality instructions.
- | Cold-chain supply can be made significantly

more energy efficient using smart supply chain technologies like compression technology to cool and solidify Phase Change Materials (PCMs) with advanced thermal properties.<sup>[8]</sup>

- | Biodegradable implants and nanoparticles are examples of innovative sustainable approaches.

**7. Artificial Intelligence (AI) and Big Data:** Big data analytics and AI in pharmacology can contribute to sustainable healthcare practices in several ways:

- | AI algorithm-based drug target identification systems make the drug discovery process accurate, faster, and more sustainable.<sup>[9]</sup>
- | AI-driven molecular modelling and simulations aid in designing eco-friendly drug candidates.
- | Predictive toxicology through AI models allows early identification of potential adverse effects and reduces costly late-stage failures.
- | AI-driven insights enable data-driven healthcare decisions, reducing ineffective treatment options in the long run.

### Conclusion: The Future of Sustainable Pharmacology

Pharmacologists are uniquely positioned to drive sustainable change in healthcare. Through sustainable drug development, personalized medicine, eco-friendly drug delivery, and exploiting Artificial Intelligence, they are reshaping the healthcare landscape. As we embrace these innovations, we must do so ethically, with an unwavering commitment to improving patient care while preserving our planet's health.

In conclusion, sustainable medical technologies are not just a vision of the future; they are a present-day imperative. Pharmacologists, with their expertise and dedication, are pivotal in advancing these technologies to create a healthier and more sustainable world.



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Investing in women's lives is an investment in sustainable development, in human rights, in future generations and consequently in our own long-term national interests.

Liya Kebede WHO's Ambassador for Maternal, Newborn and Child Health since 2005.

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## Genetics and Confidentiality of Human Genetic Data in the Context of Protection of Future Generations

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Article 16 of the UNESCO Universal Declaration on Bioethics and Human Rights is regarding protecting future generations. It states that the impact of life sciences on future generations, including on their genetic constitution, should be given due regard.<sup>[1]</sup> In this context, the International Declaration on Human Genetic Data was adopted unanimously and by acclamation on 16 October 2003 by the 32nd session of the General Conference of UNESCO.<sup>[2]</sup>

Human genome information provides accurate, personalized or individual diagnosis and a better choice of therapeutic procedures. However, such new technology may result in undesired outcomes for the next generation. For example, some particular therapeutic procedure based on a specific genetic character might cause unexpected and undesirable outcomes in the future descendants of the individual, as in the case of gene therapy targeting germline cells. Therefore, the bioethical decision-making process should take into account the impact on the present generation and the future generations. Such considerations have become more important in the application of the rapidly progressing development of new technologies like genomic science or stem cell biology.<sup>[3]</sup> The rapid development of modern techniques of human genome analysis, for both research and diagnostic purposes, entails a wide variety of problems that have fallen and remain far behind the question of technological capabilities. These problems arise in the realm of social, ethical, religious and legal issues, and cover issues such as testing children for adult-onset disorders, incidental findings as a by-product of genetic testing, increased availability of direct-to-consumer genetic tests, patenting of genetic information, stratification of whole genome sequencing results.<sup>[4]</sup> Without the need to adopt a position in the long-term dispute on genetic data exceptionalism, it should be noted that there are certain features of genetic information

differentiating it from other medical data, which raise strong objections. The genetic traits usually significantly impair the everyday life of many family members as they run in families. They cause discrimination and social stigma. They also lead to psychological fatalism due to their permanency and chronicity.

The genetic information provides insight into future health status. This causes a sense of insecurity affecting some aspects of life. Few things like complexity and rare occurrence, the probabilistic character of results and the unknown meaning of certain data which is currently uninterpretable further add to the burden.<sup>[5]</sup> Genomic population research and genetic testing, frequently based on large biobank repositories and accompanying databases, require sensible matching of genomic data with phenotypic descriptions. In many cases, matching genomic data with phenotypic descriptions accelerates the potential to identify donors of biological materials. Even the smallest piece of genetic information combined with publicly available data make genomic research potentially identifiable.<sup>[6]</sup> Hence, it is very difficult to conduct anonymous genetic testing/research. Thus, to protect the patient's autonomy, it is essential to use informed consent. In genetic clinical practice, the extent of confidentiality frequently depends on the mode of inheritance of the trait studied. The autosomal recessive disorders involve identifying heterozygotes amongst the patient's siblings. Whereas autosomal dominant disorders (as there is a 50% risk of turning to certainty) place a high burden on the patient's family and the counsellor.

Over the past few decades, an increasing number of individuals have been identified as at risk for a hereditary disease due to the availability of new technologies in the field of genetics and genomics. Currently, the proband (the first person in a family in

whom the genetic predisposition is identified) is asked to inform at-risk relatives about the hereditary disease and the possibility of predictive DNA testing. However, sometimes the relatives are not informed due to several barriers.<sup>[7]</sup> At times the index case person/family insists on keeping the information secret. It is hard to imagine that this can be done by a medical professional. The patient should know the subject of the consent to express their approval of the physician's actions or otherwise, which compensates for the difference in the doctor's and the patient's knowledge, at the same time, making the patient jointly responsible for the decisions taken.

Is the patient lawfully entitled to decide whether to transfer information to a wider range of stakeholders or not; can such information be kept confidential even if it relates to the future risk of relatives developing the disease? This can be considered a conflict of particular rights and values: the patient's right to privacy on the one hand and their family's right to information when its concealment could entail a danger to their life or health on the other. Could a doctor depart from medical confidentiality in such a case? The question could also be put differently: is the result of a genetic test, and also how it is conducted, a matter for the patient, or perhaps for the patient AND his/her family? In other words, who is the subject of the actions of a counsellor:

the patient alone or the family at risk? All these activities are based on the assumption of the indisputably ethical and lawful actions of the medical professional serving in a diagnostic/counselling process and/or researcher performing his/her duty and releasing medically significant results that are a by-product of the research activity.<sup>[8]</sup>

In research investigating the process and outcomes of family communication in the context of hereditary disease, researchers can be confronted with the dilemma of knowing about relatives who have not been informed about a serious health risk. The harm could be prevented by warning uninformed at-risk relatives, especially when the prevention and treatment options are available. A researcher may consider warning at-risk relatives directly, or indirectly by informing the treating healthcare professional. The information about genetic risk or

about uninformed at-risk relatives is valuable for the relatives and the proband's health professional. The harm caused by breaking confidentiality outweighs the benefits of warning at-risk relatives because it potentially creates distrust between the researcher and study participant and possibly harms the proband and family relationships. In other words, the agreement between researcher and participant to keep all data collected confidential should, in principle, take precedence over the duty to warn relatives. Such dilemma can be avoided by informing the participants before signing the informed consent form about the possibility that the research findings with consequences for their relatives will be directly or indirectly communicated. This, however, is not considered appropriate in the context of research on family communication in hereditary disease as it would create significant bias in the patients who might be inclined to participate as well as in the data collected. This jeopardizes research integrity, which will be compromised by biased results<sup>7</sup>.

To find the best path forward for all parties, responsible ethical decision-making should take place on a case-to-case basis. Such cases can be discussed with colleagues from different multidisciplinary backgrounds (genetics, psychology, ethics, law) or by involving a medical ethics committee.<sup>[7]</sup> This would take care of adhering to both the UNESCO Universal Declaration of Bioethics and Human Rights protecting future generations and human genetic data.<sup>[1,2]</sup>

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I have the responsibility to translate peace and stability for future generations.

Nadia Murad: co-recipient of the Nobel Peace Prize, advocate for survivors of genocide and sexual violence

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## Health challenges : Pharmacologists responsibility

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### **Introduction :**

Clinical Pharmacology is a discipline which deals with all aspects of drugs used in humans. Its vision includes the discovery and development of new drugs, the application of drugs as therapeutic agents, the use of drugs, the beneficial and harmful effects of drugs in individuals and society, and the deliberate misuse of drugs. While dealing with patient care they have a few challenges.

### **Health challenges**

**1. Access to medicine:** is the universal goal, but is found to be seldom achievable . The hurdles are the mal distribution, over-usage and wastage, non-availability in different setting due to local economics. So, under usage due to non - availability and over production of spurious and counter feit medicines is on the rise.<sup>[1]</sup>

**2. Equity in health:** is primarily of equal or unequal health *status* among individuals and groups, with a goal of promoting actualisation of *optimal health for all* as per their health potentials.<sup>[2]</sup>

**3. Dealing with pandemics:** Successive waves of the pandemic have put health systems under enormous pressure in both resourceful and resource-constrained countries. When the pandemic struck, the deficiencies at regional and global level were very clearly marked out from infrastructure, manpower, drug supplies leading to exacerbated national vulnerabilities.

**4. Research Naïve:** elderly /paediatric /neglected health care /biologicals /vaccines /stem cell/organ dysfunction situations/translational' research/ pharmacokinetic, pharmacodynamic modelling / pharmacogenetics /pharmacovigilance /pharmacoeconomics are the niche areas where research is still at a primitive stage. For many diseases, there is no diagnostic marker and appropriate treatment and remains still an unmet need enhancing the morbidity and mortality.<sup>[3]</sup>

**5. Ideal Patient care:** challenges in rational pharmacotherapeutics, initialising Drug and Therapeutics Committees (DTC) , drug information services , pharmacoepidemiology , Therapeutic drug monitoring (TDM) and pharmacogenetic services. Measurement of drug concentrations for the diagnosis and prevention of drug abuse, toxicological services and E-pharmacological services in every medical school.

**6. Medical education :** for undergraduate /postgraduate/other health professionals and consumers is challenging.<sup>[4]</sup>

**7. Collaboration:** It's a key in general for any work and there are challenges in collaboration between government and private sector, across countries and within medical branches.<sup>[5]</sup>

So, how can pharmacologist contribute to overcome these challenges? these are few suggested solutions

### **Pharmacologist responsibility:**

**1a. Access to medicine:** Pharmacologist can work at different sectors from government, private and non governmental agencies at national or global level and can play as an intermediary. Clinical pharmacologists can contribute by working as part of a team, whether in the hospital, the community or in an administrative position. The quality and outcome of drug therapy in patient care can be greatly improved by using cost-effective and evidence-based treatment with drugs adapted to the needs of populations and individual patients. Advances in drug development provide patients with new drugs, novel drug combinations, affordable biological drugs and targeted drug therapy adapted to the molecular characteristics of the disease.

**2a. Equity in health:** There has been inequity in dealing with treatment of HIV, malaria and tuberculosis infections. So, global pharmacology has marked the incongruity and local government played a big role in bringing the treatment as per their

population need.

**3a. Dealing with pandemics:** Covid-19 has highlighted many issues in pharmaceutical industry from troubling access, research, development, marketing, and distribution that are not new, but the possibilities, deficits, and constraints were recognised during the pandemic. But this highlights the role of pharmacologists that the need to valorize those aspects while working in public health and health systems, while heeding those facets that remain problematic even when our heightened awareness fades post-pandemic. When everything came to a standstill, countries with limited resources also managed the show very well because of will and vigour of all the medical fraternity joining hands and bringing vaccines in practice on time.

**4a. Research enhancement:** The need for more and better development, scientific studies, regulatory assessment and appropriate use of paediatric/geriatric medicines is recognised in all developed countries specially in United States of America (USA), European Union (EU), and World health organisation (WHO) initiatives. Implementation of all the studies mandated by these initiatives requires well trained investigators and other experts (e.g; research trained nurses, pharmacists, laboratory scientists) which in many countries do not exist in numbers sufficient to embrace the demands. For example; paediatric drug development. So as per the need, building enhanced capacity and strengthen the paediatric clinical pharmacology across the world is essential to ensure the success of these initiatives. Similarly for all other research domains also clinical pharmacologist has a big role to play as they are part of academics, ethics committee, experts in regulatory boards and part of pharmaceutical industry.

**5a. Patient care:** Pharmacologists are part of research boards and can contribute in training the research team, evaluating protocols, reviewing articles in editorial boards to generating evidence by conducting all types of studies. They can behave as a middle man for bringing evidence based medicines in the hospitals setting. E-pharmacological services provide a link between published evidence and clinical practice and can help in direct patient services. Their contribution in patient care in DTC, drug information services, pharmacovigilance,

personalised medicine to E-pharmacological services can help the entire patient community as well as the treating physicians in the hospital.

**6a. Medical education:** Making pharmacology subject interesting and understandable is a challenge, since the branch teaches basics of drugs and therapeutics which can make future medical graduates ready for rational prescribing. There should be quality education for both undergraduates and postgraduates, so that they contribute effectively in creating hospital formulary, essential drug list as well as standard treatment guidelines. Similarly while serving the Pharmaceutical industry they should follow ethical practices in advisory role, research domains, marketing /financing /pharmacovigilance

**7a. Collaboration:** Pharmacologists are neutral in many aspects and as they have knowledge regarding medicines, so they can initiate and have collaboration between different clinical departments. They have access and connects with the pharmaceutical industry so their can be public - private collaboration along with collaboration across countries. This can showcase countries with their potentials as well increase partnership and inherent capacity building for creating evidence based medicine and literature.

#### **Conclusion :**

The agenda for contemporary clinical pharmacologist's work menu is too full for a single individual or discipline to fulfil. In resource poor countries, clinical pharmacologists can make the biggest contribution, working as part of a team, whether in the hospital, the community or in an administrative position to make sustainable health care a reality.

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## Innovation in Nursing Education: Protecting future nursing generation

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### **Introduction**

Nursing education is a comprehensive and dynamic profession that is essential for the delivery of healthcare. As the healthcare industry continues to evolve, nursing education and training must remain up to date with the latest trends and innovative approaches to ensure that future nurses are equipped with the necessary skills and competencies. Nursing education combines classroom instruction with laboratory practice and clinical experiences to provide students with a comprehensive understanding of nursing theory, ethics, legal perspectives, and healthcare policy.<sup>[1]</sup>

### **Classroom Learning and clinical experiences**

Nursing education involves a combination of classroom instruction and clinical experience. Lectures and discussions provide theoretical knowledge of nursing concepts, while critical thinking skills are developed. Clinical rotations involve students working with patients in a variety of healthcare settings, providing them with the opportunity to hone clinical judgment, communicate effectively, collaborate, and demonstrate professionalism.

Innovation in education is essential in the face of the rapidly changing health care delivery system. This is due to the increased use of technology, the necessity of systems thinking, the aging population with multiple chronic conditions, and the national emphasis on patient safety and error prevention. As the health care delivery system continues to evolve, nurses have the opportunity to be at the forefront of these changes. For many years, the nursing profession has been resistant to innovation, both in professional practice and education. This has been due to a lack of nurses and faculty to provide education, as well as the development of technology and health care delivery models, the aging population, and the shift towards more patient-oriented care.

### **Innovation in Nursing Education**

Innovations in nursing education are essential for the profession to remain competitive in the future. These innovations range from online education to interprofessional education, as well as new degree programs and academic progression models. Technology integration has been a key factor in the transformation of nursing education, providing students with realistic scenarios in a secure and controlled environment, as well as flexible and accessible learning options through online and mobile applications.

IPE (Interprofessional Education) is a form of learning and collaboration between students from a variety of healthcare disciplines. This approach encourages communication, collaboration, and understanding between healthcare professionals, which can lead to improved patient outcomes. For example, a Neonatal Resuscitation program is offered. Additionally, nursing education is increasingly integrating cultural competency and diversity education, which aims to promote cultural humility, reflection, and recognition of biases. These programs involve activities that challenge preconceived notions, investigate the social factors that influence health, and provide nurses with the knowledge and skills to provide fair care to individuals of different backgrounds. Finally, online platforms and webinars as well as short-term trainings in Palliative Care and Enterostomal Therapies provide nurses with the opportunity to learn and develop in their areas of expertise.<sup>[2]</sup>

### **Transforming the Future of the Profession**

By embracing innovation and adapting to the ever-evolving healthcare landscape, the nursing profession can be transformed through a proactive approach to education. This includes the integration of technology, the promotion of interdisciplinary



collaboration, the cultivation of critical thinking skills, the promotion of cultural competency, and the promotion of lifelong learning. This will enable nurses to better prepare themselves for the health care environment and meet the changing needs of their patients and communities. To ensure the success of the future of the profession, it is essential to evaluate and encourage the new generation for Nursing Education. This includes the development of innovative ways to learn, the use of technology and the integration of nursing academia and nursing practice.

In order to maximize resources in a situation where there is a lack of clinical sites, new models with increased capacity for nursing students are necessary. Additionally, increasing the capacity of practicing nurses in healthcare settings to assist in educating nursing students may lead to improved clinical learning outcomes. Incorporating bioethical principles into students' curriculum will help to improve patients' healthcare. The millennial generation views technology as a necessity in both life and learning, and they find passive learning, such

as lecture style teaching, to be "boring". Therefore, innovation in nursing education is essential.

### **Conclusion**

In order to equip nurses with the skills necessary to adapt to new environments and practice in them, innovative strategies must be employed in nursing education. Examples of such strategies include simulation and personal digital assistants. Simulation is a method of teaching that involves simulating reality, and nursing courses are used to develop the student's clinical thinking skills. These advances in nursing education are essential for preparing nurses to provide excellent, patient-oriented care, and to drive the nursing profession forward in terms of excellence and innovation.

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We must create a conscious life as individuals and a conscious planet as a generation.

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## Protecting future generations : Transfusion physician's perspective

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**Introduction:** 'Protecting future generations', the theme for the 2023 World Bioethics Day celebrations, is inspired by Article 16 of the UNESCO Universal Declaration on Bioethics and Human Rights. It involves creating a milieu that will guide the fields of healthcare and medical research to sustain for the benefit of future generations and, more importantly, without causing harm to the unborn, voiceless cohort.

In this article, we deliberate the relevance and importance of protecting future generations in the context of blood and component transfusions.

**Background:** Blood and blood component transfusion is vital to patient care. The International Society of Blood Transfusion (ISBT) has laid down the Code of Ethics, the ethical and professional principles of which form the foundation of activities of Blood Transfusion Services. Blood is a therapeutic product of human origin. Hence, its availability depends on the benevolence of blood donors who belong to a broader community. Thus, the basic bioethical principles of blood transfusion apply to patients or blood recipients, blood donors, and society. Moreover, these principles are interdependent and not mutually exclusive between patients and donors.

### How would the practice of bioethical principles enable us to protect our future generations?

Blood donation is a symbol of human solidarity. It is an altruistic gesture by the voluntary blood donor who gives blood for the benefit of fellow human beings. Blood components such as red cell concentrate, platelet concentrate, fresh frozen plasma, and cryoprecipitate can be prepared from one whole blood donation. They may prove lifesaving for at least three patients whose blood component requirements differ. A specific blood component, for example, platelets, can be donated by a procedure called apheresis. It is, therefore,

imperative that the donors and their humane acts are respected and that their health and well-being are protected during and after the donation. This would enhance their sense of belonging to society and encourage them to become flag-bearers in this mission. The younger generations would look up to them as their role models. The legacy would be carried forward so that the blood component needs of future generations are fulfilled. This is as per the principle of mutual/societal beneficence.<sup>[1]</sup>

How do we achieve this? It is about autonomy, non-maleficence, and dignity of the donor. No person should be forced to donate blood. It must be a voluntary act without remuneration. At the same time, blood donation cannot be viewed as a right. Donors must be made aware of their accountability not to cause any harm to the recipient. After a prospective donor is provided with pre-donation information about the entire process of blood donation and its subsequent use, he has the right to decide whether to donate. Informed consent is obtained for the same. On the other hand, the blood centre physician must defer the donor if his medical history, physical examination, and blood tests do not fulfil the blood donation criteria laid down by the licensing authorities in the country. The environment must be conducive for the donor to confide in the physician and reveal any medical issues. This is done not only for the protection of the blood recipient but also for the protection of the donor, thereby following the principle of non-maleficence. Donors should be exposed to as little harm as possible. Consider a donor whose haemoglobin value is less than 12.5 g%, the minimum required for blood donation. The haemoglobin concentration in the donated blood will be sub-therapeutic. Additionally, can we allow the haemoglobin of such a blood donor to fall further by taking his blood? In fact, for example, a blood donor for whom anaemia or hypertension is detected for the first time should be referred to a clinical specialist to manage the condition. The protection of the current

generation will surely contribute to future generations' protection.

The donated blood must not be wasted. This is to maintain the dignity and respect of blood donors and their donations and can be achieved through a periodic, well-planned blood collection activity by the blood centre. Any wastage of donated blood will spread negativity in society. If this happens, how will the healthy, young, future generations come forward for blood donation?

The donor blood is tested for HIV, hepatitis B, hepatitis C, syphilis, and malaria using sensitive laboratory methods to prevent transmission of these infections to the recipients. The donor consent also includes the donor's willingness to know his test results.

The donors with non-reactive test results are counselled and encouraged to donate blood regularly. This enables the transformation of a voluntary blood donor into a voluntary, repeat blood donor! The donors with reactive test results are offered counsel and referred to integrated counselling and testing centres or speciality departments for further testing and treatment, depending on the test reactivity. Except for malaria, reactivity in any of the remaining four tests defers the donor permanently from blood donation. This prevents transmitting sexually transmitted diseases to the donor's spouse, thus protecting future generations.

Currently, molecular testing like nucleic acid amplification tests (NAT) are also available for HIV, hepatitis B and C. The window period of these infections is significantly shortened, with NAT enhancing blood safety for the benefit of blood recipients. By using these tests, early treatment of blood donors can also be initiated.

The donor's privacy must be maintained during counselling, whether pre-donation or post-test results. The donor is ensured confidentiality of his blood donation and test results.

Now, let us consider ethical principles specifically in the context of the patient as a transfusion recipient. The information regarding known risks and benefits of a blood transfusion must be provided to the patient and alternative therapies must be available to enable the patient to decide whether to accept or refuse transfusion. This is as per the principle of autonomy. The transfusion should be based on genuine clinical need. By avoiding

irrational use or misuse of blood components, we must strive to protect the recipient from adverse effects of blood transfusions (principle of non-maleficence), some of them being serious hazards such as bacterial sepsis, transmission of infections, and hemolytic reactions. If the current generation's lifespan and quality of life are secure, the future generation will have better prospects.<sup>[2]</sup>

The patient, within the limits of the local health system, should receive only the most clinically appropriate blood component/s based on the best available evidence (beneficence and justice). The patients should be treated equitably. For example, a patient with thalassemia major needs red cell concentrates and must receive only that component. A patient with hypoalbuminemia requires albumin preparations. Fresh frozen plasma, with its associated risk of transmission of infections, should not act as a source of albumin in this patient.

Irrational use of blood components in one patient may deprive another patient of that component when he needs it, in addition to causing harm to the patient who received it.

Another ethical dilemma arises when considering the financial burden invested in transfusion services. Only a fraction of patients in our country can afford to receive costly NAT-tested blood or expensive albumin preparations. How practical is it to advocate these testing or treatment modalities? Instead, can the finances be better utilized for the welfare of future generations? This is a debatable matter. However, wastage of donated blood and irrational use of blood incur a vast, careless financial burden, which is amenable to curtailment by educating medical and healthcare professionals, including the medical students who will be the face of future healthcare. Let us create awareness and protect our future generations.

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## Protecting Future generations: A Nursing perspective

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**INTRODUCTION** - Nursing science provides the basis for professional nursing practice. Nursing propositions give the critical thinking structures to direct the clinical decision - making process of professional nursing practice.<sup>[1]</sup> The history of theory development and theoretical thinking in the practice of patient care by nurses began with the FLORENCE NIGHTINGALE the founder of modern nursing {1860}. This trend is continuing till the present. Her writing "NOTES ON NURSING PRACTICE" continued to be the major framework for nurses.<sup>[2]</sup>

Nightingale focused mainly on the manipulation of the environment for the betterment of the client and the theories are as follows: -

- | Environmental Hygiene - an environmental priority for acceptable survival.
- | Nursing research - was introduced for the development of future generations.

Dorothea Orem's theory of

**a)** self-care theory (1914-2007) practice of activities that an individual initiates and performs on his or her behalf in maintaining life, health, and well-being e.g., developmental self-care requisites adjusting to body changes and or adjusting to a new one.<sup>[3-4]</sup>

**b)** Theory of self-care deficit- Nursing is required when an adult or dependent is incapable or limited in the provision of continuous effective self-care providing an environment promoting personal development to meet future demands.

**c)** Theory of nursing System-Therapeutic self-care ambulatory as well as manipulative with nurse assistant.

**SDG-** Sustainable development goals call us to think and act locally as well as globally.<sup>[5-6]</sup>

- | Consideration for future generations in learning & applying what is morally right and wrong regarding their interaction with the environment.
- | Equitable distribution of resources among developed and developing countries.

- | Meeting the basic essential needs of all.
- | Good health and well being.
- | Safe water supply and sanitation.
- | Zero hunger.
- | Quality education.

**Environmental Ethics-** Influence human individual behavior and government policy towards nature. Be friendly with nature, e.g. eco-friendly solutions i.e. avoiding the use of plastic bags, preferring to use smokeless stoves or chulas. Green lifestyle is harmonious with nature.

Inculcate orientation of moral value newly as- '**Environmental ethics is the fullest extension of human ethics**'.

**Transcultural nursing-** Transformation of cultural values to the next generation to sustain moral values in their life.

**Futuristic Nursing- Nursing in the 21st Century: -**

- | The future holds numerous technological, social & political changes.
- | Societies will continue to move towards globalization with an increased sharing of products, attitudes, and financial investments
- | The client may be more likely to combine conventional therapy with complementary healing techniques such as therapeutic touch, reflexology, acupuncture, aroma therapy, nutritional therapy, 24/7 hours nurse, and managed clinics.
- | Nurse practitioner services.
- | Family nurse practitioner.
- | Nurse therapist in the daycare health center.
- | Women's health nurse practitioner.
- | Forensic Nursing
- | Legal Nurse consulting.
- | Registered nurse anesthetic administration.
- | Mobile nursing/Health care education.
- | Space nursing certified nurse practitioner.
- | Arrow nursing.
- | Artificial intelligence in nursing - AI tech also streamlines workflow processes, automates



administrative tasks, optimizes resource allocation & improves operational efficiency. This reduces the burden on healthcare professionals, allowing them to focus more on direct patient care & on improving patient experiences and outcomes e.g. Chat boxes & social robots simulate human conversations &

provide companionships for individuals in long-term care facilities. Specifically, in nursing, AI can play a huge role in helping nursing students & nurses make better clinical decisions about their patients.

1. Telenursing – Nurse/Patient interaction through telecommunication devices, telenursing has been used as a tool in-home nursing. e.g. people who are immobilized or who are in faraway places or living in difficult-to-reach places. It helps to perform patient triage in emergencies through call centers. Counseling & guidance services provision make early decision-making and further healthcare management.

2. Clinical nurse services should have the following characteristics – Clinical judgment, inquiry, facilitator of learning, collaboration, system thinking, response to diversity, patient/client-centered approach, and Evidence-based nursing practices.

**Evidence-based nursing practices-** Involves providing holistic, quality-based care on the most up-to-date research and knowledge of finding, appraising and applying scientific evidence to the treatment and management of healthcare. e.g., Use of oxygen to help with hypoxia & organ failure in patients with COPD, following protocols regarding alarm fatigue.

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Agricultural practice that are soil-friendly are vital for the future of humanity. The human body is a reflection of the living soil.

Sadhguru, Jaggi Vasudev

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## Intergenerational Ethics and Solidarity: Obligation to Posterity

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The environment and resources are for everyone: they are inalienable property of everyone and there does not exist over this universal prosperity discretionary sovereignty exempting from responsibility towards humanity of today and tomorrow. : Pope John Paul VI conveyed this in his message to United Nations Conference on Human Environment held at Stockholm (1972) <sup>[1]</sup> Religions across the globe have the wisdom of our forefathers advising preservation of the nature for posterity. Puranas and Samhitas advise that survival of humans is subject to preservation of natural resources and their destruction will lead to calamities like droughts. We have been witnessing these frequently in recent years. <sup>[1]</sup>

There are texts in literature of every religion that remind us of interdependence of all life forms and our resultant accountability to the posterity.

Intergenerational ethics is a thought stem that deliberates on the equities or inequities between the stakeholders and obligations of the current generation to the future ones. <sup>[2]</sup> Both deontological and utilitarian views hold up the duty and accountability of the current generation towards the future ones to leave behind a safe and thriving planet for them.

### **Fall out of Human Development**

#### **Industrial by-products:**

#### **Carcinogens and endocrine disruptors <sup>[3]</sup>:**

Endocrine disrupting chemicals are seen to affect thyroid, corticosteroids including sex hormones. Polychlorinated biphenyls and hexachlorobenzene are 2 prominent examples.

Industrial waste like polychlorinated biphenyls contained in motor oils, cables, electrical equipment containing PCB capacitors. Acute exposure to high levels of hexachlorobenzene ( used in pesticides) affects the nervous system; skin; liver, production of the heme of hemoglobin; and thyroid and even exposure related cancers of these systems are

reported in animals as well as humans.

**Soil pollutants:** Soil contamination due to War in Ukraine has destroyed capacity of the country's agriculture as one of the world's leading cream and oilseed producers. This will have effect on food security.

Even productive efforts like use of sewage sludge for fertiliser has caused health hazard in European nations as per the studies. <sup>[4]</sup> Microplastics are found in this sludge and is a threat that will remain for years to come in the soil. These are on the verge of becoming pollutants rather than mere contaminants. The health effects of microplastics are on endocrine systems among others including cancers, cardiac disease and poor fetal development.

**Water pollutants:** Excess amounts of effluents in sea waters have caused aquatic life to perish. This in addition to overfishing, has caused the poorer populations to consume aquatic bushmeat indiscriminately to get protein source, causing illnesses and fatalities. With worsened food security, the poor of tomorrow stand to lose the most. The microplastics sewage sludge used in fertilisers getting washed away with rain into the reservoirs also poses a lasting threat.

#### **Environment and fertility:**

Sperm health and quality are under threat . Studies suggest that sperm quality is particularly affected by the effects of climate change. Sperm quality and quantity are affected by chemicals found in plastics as well as commonly consumed medications. <sup>[5]</sup>

#### **Nuclear disasters:**

Who would have forgotten Chernobyl disaster and Hiroshima, Nagasaki? <sup>[6]</sup>

The longest lasting and hitherto developing effects of the nuclear disasters have made these places inhabitable for humans for centuries to come.

#### **Technological actions to mitigate the effects of pollution:**

Geographic Information Systems to Improve Water

Quality<sup>[7]</sup> : The GIS system helps to detect and manage changes in mineral and pH levels of water. It helps to create model sewage systems, reduce water pollution. Botanists have been searching and storing up hardier seeds of threatened foliage that can grow in drier weathers so that they could be replanted.<sup>[8]</sup> Numerous different efforts are on to reduce efflux and remove contaminate deposit of microplastics from water and soil.<sup>[9]</sup>

#### Global Macrolevel actions:

UNESCO's Declaration on the Responsibilities of the Present Generations Towards Future Generations<sup>[10]</sup> talks about promoting intergenerational solidarity to ensure perpetuation of humankind. It puts onus on the member states to ensure implementation of the resolution and fulfilment of intended duties.

#### Conclusion:

The present generation has the power to influence the future generation socioculturally, politically as well as through technology developed today. Today's society will have the right to decide the population size of tomorrow. As the future generation is a nonidentity today, it is only by projection and computation that we can calculate the risks of our acts of commission or omission today that the future generations will be faced with. All we can do today is work on potential solutions.

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We are behaving as if we are the last generation on this planet. If we value life and the lives of future generations, we have to take care of our soil and water.

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## A Women's Health Perspective of Intergenerational Justice

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### **Introduction:**

Article 16 of the 2005, the Declaration of UNESCO, speaks of Protecting future generations and is the current annual theme of the Bioethics discourse across the globe. It is targeted at the global population and addresses diverse context from environmental issues to biodiversity protection. Protection of future generations from pollution endangering their health or even existence, is a moral responsibility of the present generations too. Looming threat to natural resources necessary for sustaining human life and for its development are another area of emphasis in this context.

From this macro view for global population, we shift the focus to our country's women's health and see where we are as a nation and what are the possible steps that will reduce the health perils for them. In spite of significant medical advances, the basic issues of the larger population have not changed in 75 years in our country- population stabilisation and access barriers to health due to gender discrimination. All the progress and development notwithstanding, quality of life for common woman has not changed. What is our ethical responsibility toward future generations of women?

### **The UNESCO Vision:**

The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), at its 29th session in 1997 in Paris, proclaimed the Declaration on the Responsibilities of the Present Generations Towards Future Generations. It spelt out 12 articles of import for the future generations of which the most relevant for discussion on 'Protecting Future Generations ' are articles 4 to 7 and 11. Preservation of life, protection of the environment, human genome and biodiversity, cultural diversity and heritage, and non-discrimination make up these articles.<sup>[1]</sup>

Article 16 of the 2005 the Declaration of

UNESCO, speaks of Protecting future generations: The UNESCO documents and commentaries lay stress upon the impact of life sciences, an example being genomic data or stem cell technology, on coming generations especially their genetic constitution.

In the related texts, germ line genetic interventions are considered as relevant in the medical context.<sup>[2]</sup>

### **Fertility control and Autonomy:**

Population stabilisation is a big issue for the already overburdened globe. Population stabilisation and fertility control have to be aligned with reproductive freedom of women.

It has been noted that the lesser the child and infant mortality rate, the lesser and nearer the desired is the total fertility rate.<sup>[3]</sup> Better the health indices and facilities for children reflect in reduced fertility rate among couples. So, the solution is in the hands of the health systems and policies.

What is the unreached population in terms of population stabilization? It is the women who have not reached at least the ten-year milestone in schooling. As per the NFHS 5 only 41% of Indian women in the reproductive age bracket fulfil this modest requirement. The second is the minority women. So, here the solution is in the hands of communities. Better facilities, reducing barriers and taking school to them will help the empowerment of these women and reflect in reduced fertility.

Educated women are more likely to negotiate contraceptive use.

At present condom use is less than 10% in married couples.

As per NFHS 4 female sterilisation is at 36% and male sterilisation at abysmal 0.3%.<sup>[4]</sup> Knowledge of modern methods of contraception has not reflected in use. 98% vis a vis 57%. There is not much difference in NFHS 4 and 5 figures in this context.

Targeted approach to family planning and population



control repeatedly has been shown to not work.<sup>[3]</sup>

What are the lessons from this? Coercive family planning leads to sex selective abortions and discrimination against girl child. The root causes of poor use of contraceptives are lack of access for women and misconceptions rooted in lack of information. These factors cannot be addressed by setting targets. Also, abortions or interceptive are used as spacing tools. This has serious repercussions on for women's physical and emotional health.

### **ARSH: Adolescent Reproductive and Sexual Health:**

Adolescents of today are the future of tomorrow. They require a non-judgmental, non-threatening approach and behavioral change communication in order to achieve the Reproductive and Sexual Health goals.

Inclusion of the partner and in some cases parental counseling are important in protection of young population of females. Schools and colleges must shed the stigma attached to sexuality education and work in unison with healthcare providers and counsellors.

In the context of adolescent safety, NACO ARSH clinics have been successfully working for years in the communities.

Two very important issues are poor uptake of HPV vaccine in the community and adverse implications of the Protection of Children from Sexual Offences Act (POCSO act).

To safeguard their future, adolescents must be informed about physical and emotional effects of sexual experimentation and misadventures, the POCSO act and its impact on male adolescents in consensual relationships.

### **Cancers and Women:**

BRCA 1, 2 testing : Changing age profile of breast cancer and availability of BRCA1 and BRCA2 tests have made guidelines by cancer specialists include the tests in screening of women with high-risk family history. Testing is intended to help women make decisions about risk reduction surgery, family plans, relationship plans, financial decisions. But there are numerous personal effects. There can be all consuming fear of cancer that may strain social and intimate relationships. Medical and reproductive decision making may be confusing as uncertainties cannot be ruled out. This underlines the importance

of competent genetic counseling.

Harms of prophylactic risk reduction surgery can be far reaching. Menopausal changes advance in patients undergoing prophylactic oophorectomy. So when BRCA 1, 2 testing becomes a norm, counseling has to be integrated in medical practice.

Chemoprevention: Every potent medication has side effects. FDA approved chemo preventive medications like Tamoxifen have thrombosis, endometrial hyperplasia and cancer.

Should a person who has no cancer yet be given prevention (Not Treatment) with these drugs?

Confidentiality: Medical records including genetic test reports are bound to be shared by clinicians for purpose of treatment. There may be inadvertent access to others. Legally permitted access to employers or insurance companies may create fear of employment and insurance denial.<sup>[5]</sup>

### **Genetic Interventions:**

Germline gene therapy (GGT) acts on the reproductive cells, and structural changes to the DNA of the gametes which can be transmitted vertically across generations. The following are safety and ethical concerns GGT.

The prime safety concern regarding GGE stems from unintended changes to the genome- Off-target mutations that could potentially result in the development of cancer and other pathologies. Gene editing of human embryos could cause disease and disability.

Use of GGT for human enhancement is another possible ethical violation. It would perpetuate discrimination against the 'not perfect children'.<sup>[6]</sup>

Germ line or in utero gene therapy is prohibited in India, due to ethical and social considerations.<sup>[7]</sup>

### **Eco responsive surgical practice:**

COVID pandemic was an eye opener to the psychological false sense of security that disposables give us. It is important to know warming effects of Desflurane like agents and reduce their use.

### **Environmental medicine and awareness building:**

The American College of Obstetricians and Gynecologists has included importance of familiarity with Environmental pollutants and awareness building skills in the educational recommendations. The NIEHS Sister Study evaluated, in 2023, found between chronic dioxin exposure in the environment and breast cancer risk.<sup>[8]</sup>

9]

**Education:**

At present there are limited must know skills in Obstetrics and Gynecology for exiting Medical Graduates. The unmet educational needs of the students are 'Behavioural Change Communication Skills'.

If we want the Indian medical Graduate to be skilled communicator, repository of the above discussed knowledge should be shared with him not only for the welfare of women but also for the old and the young of all ages and for protection of our future generations.

**Conclusion:** For a safe future generation, women who are central to the family unit have to be safe, empowered and autonomous. Their empowerment will lead to population stabilization that is the glaring need of the day.

Also, the medical advances should be examined from the rights perspective and today's graduate must be given the skills for behavioral change communicator and health advocate.

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Defeating malaria is absolutely critical to ending poverty, improving the health of millions, and enabling future generations to reach their full potential.

Tedros Adhanom: Ethiopian biologist, the first African to serve as Director General of the WHO.

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## Empowering the Disabled: The Transformative Impact of Technology in India

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The Universal Declaration of Human Rights (UDHR) was adopted by the United Nations General Assembly on December 10, 1948, as the universal benchmark for human progress. It outlines basic human rights that should be universally upheld and protected, inspiring over seventy human rights treaties now implemented globally.<sup>[1]</sup>

The rapid advancements in technology have revolutionized various aspects of society, including its profound impact on the lives of disabled individuals. In India, where 2.68 Crore (2.21% of the total population, Census 2022) of people with disabilities face numerous challenges and limitations, technology has emerged as a powerful tool that facilitates their empowerment and enhances their quality of life. The use of technology to enhance the lives of disabled individuals has been a continual topic of research and development for many years. This essay explores the use of technology in enabling disabled individuals in India, highlighting its potential to bridge gaps, promote inclusivity, and provide equal opportunities for all.<sup>[2]</sup>

### **1. Assistive Devices and Mobility Aids:**

Technological innovations like prosthetic limbs, orthotic devices, wheelchairs, and mobility aids have significantly improved the mobility and independence of disabled individuals. These devices enable easy access to education, employment, and social activities, helping to break down physical barriers that hinder their participation in society. The participation of disabled individuals in Paralympic events showcases a unique example of the use of these mobility aids and assistive devices.

### **2. Augmentative and Alternative Communication (AAC) Solutions:**

AAC technologies such as speech-generating devices, eye-tracking systems, and assistive apps enable people with communication disabilities to express themselves effectively. These tools facilitate improved communication, social interaction, and

inclusion for individuals with speech impairments or conditions such as autism or cerebral palsy. Additionally, software applications and other technological tools have been developed that allow individuals with certain disabilities to communicate more effectively by providing visual or auditory interpretations of communications.

### **3. Accessible Digital Platforms:**

Web accessibility standards ensure that websites, mobile applications, and digital content are designed to be accessible for people with disabilities. Accessible technology allows individuals with visual impairments or hearing loss to access information independently and participate fully in the digital realm. Technology has also enabled disabled individuals to access online support groups and networks of individuals facing similar challenges. Overall, the use of technology has helped to improve the lives of disabled individuals by providing them with better opportunities, access, and independence.<sup>[3]</sup>

### **4. E-Learning and Online Education:**

Technology-enabled e-learning platforms provide inclusive education opportunities for students with disabilities by offering flexible learning environments. Online courses cater to diverse needs by providing specialized content formats and assistive features like screen readers or closed captions.

### **5. Assistive Technologies for Visually Impaired:**

Innovations such as screen readers (text-to-speech software), braille displays, and optical character recognition (OCR) technology empower individuals with visual impairments. These tools enable access to digital content, printed materials, and employment opportunities, fostering independence and integration into society.<sup>[4]</sup>

### **6. Telemedicine and Remote Healthcare:**

Technology facilitates remote healthcare services, benefiting disabled individuals residing in rural or

underserved areas. Telemedicine allows people to consult with healthcare professionals, receive medical advice, and access specialized care without the need for physical travel.

**Ethical considerations in Assistive Technology:** The environment created and development of technology using Artificial Intelligence and Assistive technology has a large potential benefit in terms of functionality and potential risks regarding autonomy and beneficence. However, because technology is used in ways that can dramatically affect the lives of those who use them, important ethical questions must be considered. The ethical areas of autonomy, fidelity, beneficence, nonmaleficence and justice needs to be used as a frame of reference while prescribing Assistive Technology. Since Assistive Technology applications impact the vulnerable population like intellectual disabilities or dementia, additional questions maybe raised around issues like informed consent, privacy and security of data.

**Conclusion:**

Technology is enabling the disabled to pursue their dreams and accomplish goals that would have otherwise been impossible before technological advances. These advancements have been true game-changers in the lives of so many people with disabilities, allowing them to feel included and participate more fully in society. Technology plays a vital role in empowering disabled individuals in India by enhancing their mobility, communication, education, employment prospects, and overall quality of life.

However, before providing the availability, Assessment and evaluation of a disabled individual by an Occupational Therapist for appropriate identification and satisfying specific needs is done.

An important factor that an Occupational Therapist assesses is the environment in which the mobility and adaptive devices will be used for easy Access and independence in daily living activities and to enhance his Work Skills.

As technology continues to evolve rapidly, policymakers, organizations, and society as a whole must ensure its widespread availability and accessibility. Technology harnessing is an incredible advancement in today's society, as it has enabled people to have greater access to the world and live more independent lives. By embracing inclusive design principles and promoting universal access to technology, India can create an environment where disabled individuals can thrive, contribute their unique talents, and participate fully in all aspects of society.

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“The earth will not continue to offer its harvest, except with faithful stewardship. We cannot say we love the land and then take steps to destroy it for use by future generations.”

- Pope John Paul II

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## Empowering future generations : A Mental Health Perspective

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*“Even if we don't have the power to choose where we come from, we can still choose where we go from there.”- Stephen Chbosky.*

### **Introduction**

Mental health is a universal human right, and this right extends to the youngest members of our society. The mental well-being of children and adolescents is not only crucial for their present but also for the future. As we navigate the complexities of the modern world, it becomes increasingly evident that we must prioritize the mental health of our future generations. In this article, we will explore the multifaceted dimensions of empowering the future generation from a mental health perspective, with a specific focus on children and adolescent mental health, stress, psychosomatic disorders, gender inclusivity for the LGBTQ community, and the promotion of positive mental health.<sup>[1]</sup>

Early childhood is the formative period of an individual where he/she achieves motor, sensory, social and spiritual milestones. It shapes an individual's behaviour and personality. The genetics and learning principles guide the child's emotional and cognitive development. Adolescence is the stage of transition from childhood to adulthood and typically comprises of the age group 13 - 19 years. Professor B. Bradford Brown provided the following overview of psychosocial development of an adolescent -

1. to stand out-to develop an identity and pursue autonomy,
2. to fit in-to find comfortable affiliations and gain acceptance from peers,
3. to measure up-to develop competence and find ways to achieve, and
4. to take hold-to make commitments to particular goals, activities, and beliefs.

### **Understanding The Need**

Common mental health problems in childhood and

adolescence include stress which can lead to depression and anxiety, substance abuse and gender identity problems. Late adolescence and early adulthood is the age at which major mental illnesses like psychosis can occur.

During childhood, mental health problems may manifest as disturbances in behaviour, conduct and disruption in biological functions like appetite, sleep, urinary/faecal continence, and play. Common conditions encountered are intellectual disability and learning disorders. Often children with such conditions are observed by their teachers who counsel the parents to seek a psychological assessment of the child.<sup>[2]</sup>

Stress in the early years of life can lead to development of psychiatric conditions like depression, anxiety and psychosomatic disorders. Common symptoms seen in depression in the younger population are persistent sadness of mood prevailing over weeks, decreased interest in daily activities, decreased pleasure in previously pleasurable activities, irritability, decreased or increased appetite (craving for sugary/fried food), decreased or increased sleep, lethargy, easy fatigue. Warning signs include voicing of death wishes and/or suicide attempts. Voicing of suicidal ideas should not be dismissed as empty threats. It calls for a psychological evaluation by a mental health professional. Suicide helplines and suicide gatekeepers can help provide immediate support and refer to appropriate health care facilities.

Anxiety disorders are not uncommon in the adolescent age group. Some common symptoms include feeling of jitteriness or being “on edge” at all times, excessive worrying about things that could go wrong, procrastination of work, feeling overwhelmed, stress-eating, panic attacks, insomnia, headache etc. A potentially dangerous coping mechanism to deal with this anxiety is the

consumption of alcoholic beverages or smoking. It is commonly seen among adolescent boys and less commonly, among girls. Vaping has recently gained popularity among adolescents and young adults.

Childhood and adolescence are the periods of formation and development of human sexuality and gender identity. Awareness of the wide spectrum of sexuality and gender, can help young individuals better understand their own gender and sexuality. However, lack of gender and LGBTQ+ inclusivity in health education may often lead to questioning teenagers, who may actually have a non-heterosexual orientation (homosexual, bisexual, pansexual or asexual) or non-cis gender identity (whose biological sex and gender identity do not align), to suffer from severe mental distress. Studies across the world have shown higher rates of mental health problems like anxiety disorder, depressive disorders, and even suicides, among people who belong to the LGBTQ+ community.<sup>[3-4]</sup>

Health education imparted in schools and colleges should include information regarding mental health problems and sexual health education. Awareness about problems related to mental health and unsafe sexual encounters can go a long way in prevention as well as early diagnosis and intervention. This would significantly reduce morbidity and impairment associated with long duration of untreated health conditions. From a mental health perspective, it is quite crucial to have an early diagnosis and intervention as it can prevent cognitive impairment and allow early and maximal recovery from the illness. Cognitive impairment associated with untreated mental health problems can result in socio-occupational decline in the form of strained interpersonal relationships, decreased sociability, withdrawal from social circle, inability to complete education, inability to sustain jobs, decline in pay-scale and standard of living. Untreated common mental illness accounts for more population with disability than severe mental illness.

**Interventions to Empower Younger Generations :** Children and adolescents spend a significant portion of their formative years in educational institutions. Schools and colleges play a pivotal role in shaping not only their academic skills but also their mental and emotional well-being. Here are some key aspects to consider for empowering the future generations :

- 1) Early Intervention:** Identifying mental health concerns in children at an early stage is vital. Schools and colleges should have trained professionals who can spot signs of distress and provide the necessary support.
- 2) Holistic Education:** A balanced approach to education that includes not only academics but also emotional and social learning is essential. This can help children build resilience and cope with the challenges they face.
- 3) Reducing Stigma:** Schools and colleges should actively work to reduce the stigma associated with mental health issues. Encouraging open discussions and empathy can create a more supportive environment.
- 4) Parent and Teacher Awareness:** Parents and teachers are the primary caregivers and influencers in their lives. Their awareness and involvement are crucial in fostering good mental health:
  - a) **Education and Training:** Parents and teachers should receive training on recognizing signs of mental health issues and how to provide appropriate support.
  - b) **Communication:** Open and honest communication between parents, teachers, and students is vital. It creates a support system that helps them feel understood and valued.
  - c) **Role Modelling:** Adults should model healthy behaviours and attitudes towards mental health, demonstrating that seeking help when needed is a sign of strength.
- 5) Peer Support Programs:** Peer support groups can help students connect with others facing similar challenges, reducing feelings of isolation.
- 6) Stress Management:** Schools should incorporate stress management techniques into the curriculum, teaching how to cope with stress in healthy ways.
- 7) Mindfulness and Meditation:** Practices like mindfulness and meditation can help children become more resilient in the face of stress.
- 8) Collaboration with Healthcare:** Schools and

colleges should collaborate with healthcare providers to address psychosomatic disorders, ensuring a holistic approach to treatment.

**9) Sex Education :** The curious adolescent minds often resort to unreliable and incorrect sources of sex education on the internet, to get answers and also sexual thrills from pornographic sources. This may lead them to form unrealistic expectations about sex, sexuality, biological functions, masturbation and body image. Such sources may promote risky sexual behaviour which may lead to teenage pregnancies, trauma and injury to sexual organs, sexually transmitted illnesses (STIs). Parents and teachers can be the best guides to correct sex education, if they can break the ice around the topic. It is important they do so before their wards resort to such improper sources.

#### **10) Gender Inclusivity for the LGBTQ+ Community :**

- a) **Safe Spaces:** Schools and colleges should create safe and inclusive environments where LGBTQ+ students feel supported and protected from discrimination and bullying.
- b) **Education and Sensitization:** Teachers and students should receive education and undergo sensitization to understand the unique challenges faced by LGBTQ+ youth.
- c) **Supportive Policies:** Educational institutions should have policies in place to address issues such as gender identity and gender-neutral restroom access, promoting equality and inclusivity.

#### **11) Promoting Positive Mental Health :**

Empowering the future generation means not only addressing problems but also promoting positive mental health:

- a) **Life Skills Education:** Schools and colleges should teach life skills such as emotional regulation, resilience, and conflict resolution.
- b) **Physical Activity:** Regular physical activity is linked to improved mental health. Educational institutes should prioritize physical education and playtime. Strategies to promote positive mental health include disciplined lifestyle with timely meals, balanced diet, exercise, sleep, work-leisure balance, time for self-development etc.
- c) **Yoga and Meditation :** These are time-tested methods of promoting health and well-being.

- d) **Arts and Creative Expression:** Encouraging artistic and creative activities can provide children with outlets for self-expression and emotional release.
- e) **Communication Skills Development :** Learning effective communication skills helps to promote healthier inter-personal relationships and that, in turn, can lead to a strong social support network.

#### **Conclusion:**

The age-old proverb “Prevention is better than cure” holds true even today. It is always a better idea to develop and strengthen one's resilience to stressful situations in life with healthy coping skills than to suffer from mental health problems. That being said, it should not mean that there is any shame in suffering from mental health problems and seeking help for recovery. People who are going through mental health problems are not weak neither is it a consequence of their own wrong-doings. Illness, whether physical or mental, can affect anyone any day. Hence, seeking help in a timely manner without hesitance is always a smart decision.

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## ANNUAL REPORT 2021-22

### **WORLD BIOETHICS DAY CELEBRATIONS 2022:**

GSMC MUHS International Chair Bioethics Unit Celebrated World Bioethics Day 2022 on 12<sup>th</sup> October, 2022. As a part of World Bioethics Day Celebration 2022, various competitions, and main events were extended over a period of August- September followed by the main event on the theme '**SOCIAL RESPONSIBILITY AND HEALTH**'.

The unit has a strong students' wing that carries out various activities. Both faculty and students were involved in planning, organizing and execution of these events. Experts from outside and within the institute were invited as judges. Artistic poster, Photography, Poetry and Short Film Competitions were held a month prior World Bioethics Day Celebration.

**A Symposia on Transplant Ethics and Health System Responsibility was also organised on this occasion.**

This session was moderated by Dr Padmaja Samant, Head of Unit, GSMC MUHS International Chair Bioethics Unit.

### **The guest speakers were:**

1. **Dr. Chetan Kantharia: Topic: Contentious Issues in Liver Transplant.**  
Professor & Head, Department of GI Surgery, Seth GSMC & KEMH, Mumbai
2. **Dr. Chandrakala: Topic: Ethical Aspects of HSCT.**  
Professor & Head, Department of Haematology, Seth GSMC & KEMH, Mumbai
3. **Mr Shrikant Apte: Topic: Needs and Expectations from Organ Transplant Programme**
4. **Dr. Akash Shukla: Health System Responsibilities for A Successful Transplant Programme**  
The speakers used interesting cases and shared experiences from their field. This symposium was very much appreciated by the audience.



## NURSING FACULTY SENSITIZATION PROGRAMME IN BIOETHICS

Nursing students orientation program was held on 10<sup>th</sup> June 2023 from 1 :00 am to 4 :00 pm. Total 93 nursing student participants were present. The program started with Ganesh Vandana & Lamp lighting by Dr. Padmaja Mavani, Head of GSMC MUHS International chair in Bioethics Unit & Principal of Nursing college, She introduced GSMC MUHS International Chair Bioethics Unit & its objectives and roles in education of medical and allied health sciences courses for undergraduates and postgraduates.

The objective was to sensitize all nursing students with the principles of bioethics. Sister Tutor Arya Deshmukh, Dr. Anjali Telang, Dr. Yashashri Shetty, Sister Tutor Vaishali Chavan, Dr. Padmaja Samant, Brother Tutor Ravindra Markand were faculty for conducting sessions on bioethics principles and ICN code of ethics in the field of nursing. Narration and Reflection followed by interactive case examples by Bioethics Unit members and the participants. Bioethics student wing members were also present. The program ended with a vote of thanks by Sister Tutor Mrs. Vaishali Chavan followed by National Anthem.



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**NURSING FACULTY SENSITIZATION PROGRAMME IN BIOETHICS**



**STREET PLAY COMPETITION**



## Report of Academic Training programmes

### Lecture programme on AETCOM competencies - 20th June 23

Nursing student Ms. Sampada welcomed the participants and speakers

Dr. Yashashri Shetty, Head Steering Committee of GSMC MUHS Bioethics unit gave the background of the programme and introduced the speakers.

On 20<sup>th</sup> June 23, informative lectures by Dr. Suganthi Iyer, Director (Legal and Medical) at P. D. Hinduja National Hospital & Research centre, Mahim delivered a lecture on “Medical Negligence and medical malpractice” and Dr. Shubhangi Parkar, currently Dean at Vedantaa Institute of Medical Sciences, Dahanu, Palghar delivered a lecture on “Impaired Doctor”. The lectures were conducted in theatre 2, second floor, college building, KEM Hospital. The lectures were very interesting and evoked a lot of thoughts and received a very good response from faculty and students.

50 participants including, UG, PG students, nursing and OTPT students and faculty members attended the programme.

The lectures were followed by discussion and question answers. The speakers were felicitated. Refreshments were served.

Dr. Padmaja Samant, Head GSMC MUHS Bioethics unit gave the vote of thanks.



Dr. Shubhangi Parkar delivered lecture and was felicitated by Dr. Ajita Nayak



Dr. Suganthi Iyer delivered lecture and was felicitated by Dr. Vijaykumar Singh

## Bioethics Grand rounds- 31st July 2023

GSMC MUHS Bioethics unit and Department of Surgery GSMC, KEMH together conducted Bioethics Grand rounds on Ob Gyn and surgical Ethics dilemmas on 31<sup>st</sup> July from 11.00 am -02.00 pm at Sen Kinare Hall, CVTS Building, KEM Hospital.

Dr. Usha Bhojane Kasar welcomed the participants and the experts

Dr. Yashashri Shetty introduced the experts.

### Experts:

Ms. Veena Johari: Advocate and Ethicist

For surgical cases: Dr. Akash Shukla: Professor and Head GI Medicine

Moderator: Dr. Monty Khajanchi and Dr. Jayati

### Surgical cases:

1. Consent
2. Interdisciplinary communication and confidentiality

For Ob gyn cases: Dr. Poornima Satoskar: Professor and Head Ob Gyn- Nowrosjee Wadia Maternity Hospital

Moderator: Dr. Padmaja Samant

### Ob Gyn cases:

1. Sexual Rights of the minors vis a vis POCSO act
2. Right to life - DO the unborn have rights? MTP in the light of revision of the act

There was lively discussion surrounding the cases.

The experts were felicitated. Refreshments were served.

Dr. Samant gave a vote of thanks.





**GSMC MUHS BIOETHICS STEERING COMMITTEE MEMBERS 2022-24**

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12.	Sister Vaishali Chavan	Member	Nursing	vaishalighchavan@rediffmail.com 9892143822
13.	Sister Aarya Deshmukh	Member	Nursing	anveearya@gmail.com 7798325988
14.	Brother Ravindra Markad	Member	Nursing	ravindramarkad@gmail.com 7208608070
15.	Dr Anjali Telang	Member	Anatomy	dranatelang@gmail.com 8956564402
16.	Dr Kanchan Kothari	Member	Pathology	kanchankothari@hotmail.com 9820056313
17.	Dr Venkatesh Rathod	Member	Physiology	venkateshrathod23@gmail.com 9423472580
18.	Dr. Mariya Jiandani	Member	Physiotherapy	mpjiandani@gmail.com 9820191106

**GSMC MUHS BIOETHICS STEERING COMMITTEE  
OFFICE BEARERS 2022-24:**

<b>Sr. No</b>	<b>Name</b>	<b>Unit Affiliation</b>	<b>Designation</b>
1	Dr Sangeeta Ravat	Chairperson	Dean
2.	Dr Harish Pathak	Co-chairperson	Academic Dean
3.	Dr Padmaja Mavani	Head, Bioethics Unit	Obstetrics and Gynecology
4.	Dr Yashashri Shetty	Head, Steering Committee & Editor	Pharmacology and Therapeutics
5.	Dr Usha Kasar	Secretary	Occupational Therapy
6.	Dr Jyotsna Thosar	Treasurer	Physiotherapy
7.	Dr Kanchan Kothari	Website coordinator	Pathology

**STUDENTS'WING MEMBERS 2022:**

<b>Sr No</b>	<b>Name of the Student</b>	<b>Course</b>	<b>Year</b>	<b>Contact number</b>
1	Paras Arora	MBBS	Third Year	+91 97698 29559
2	Vaibhavi Tapade	MBBS	Third Year	+91 97029 11888
3	Vaishnavi Miskin	MBBS	Third Year	+91 72192 74966
4	Alisha Sayyad	MBBS	Third Year	+91 93241 91265
5	Dikshant Degloorkar	MBBS	Second Year	+91 9545050135
6	Mansi Goud	MBBS	Second Year	+91 8976098930
7	Vineet Chandak	MBBS	Second Year	+91 9657513474
8	Samridhhi Narayan	MBBS	Second Year	+91 9594966591

<b>Sr No</b>	<b>Name of the Student</b>	<b>Course</b>	<b>Year</b>	<b>Contact number</b>
9	Dheer Porwal	MBBS	Second Year	+91 8446687906
10	Danish Memon	MBBS	First Year	+91 9763462636
11	Piyush Shinde	MBBS	First Year	+91 9730878498
12	Jidnyasa Gaikwad	MBBS	First Year	+91 7841818489
13	Jiya Dubey	MBBS	First Year	+91 9322308699
14	Shama Siddiki	Occupational Therapy	Second Year	+91 8007483843
15	Yashwant Waghmare	Occupational Therapy	Second Year	+91 9152592835
16	Arya Sarang	Occupational Therapy	Second Year	+91 9892702107
17	Drashti Gala	Occupational Therapy	Second Year	+91 8104196470
18	Kinjal Lapasiya	Physiotherapy	Final Year	+91 9930530035
19	Anusha Kapileshwar	Physiotherapy	Final Year	+91 93265 96578
20	Yashvi Gogri	Physiotherapy	Third year	+91 83694 99121
21	Anushree Somanathan	Physiotherapy	Second Year	+91 98921 21187
22	Akash Joshi	Physiotherapy	Second Year	+91 93097 00599
23	Rutuja Bhoir	Nursing	Second Year	+91 70217 22135
24	Priyanka Bunde	Nursing	Second Year	+91 70217 22135
25	Sampada Sawant	Nursing	Second Year	+919403033972
26	Pooja Hajare	Nursing	Second Year	+919324210670
27	Neha Yadav	Nursing	Second Year	+918879542999
28	Swapnali Hile	Nursing	Second Year	+919309533539
29	Santoshi Vanve	Nursing	Second Year	+917264982182
30	Poonam Kadam	Nursing	Second Year	+917755908939

**WINNERS OF WBD 2023 COMPETITIONS:**

<b>Name of Competition</b>	<b>Name of the Student</b>	<b>Course and Year</b>
<b>1. Poster</b>		
<b>First Prize</b>	Laxmi Maurya	First Year MBBS
<b>Second Prize</b>	Karishma Sakharam Pimple	Third Year Nursing
<b>2. Essay writing</b>		
<b>First Prize</b>	Pallav Satish Shelke	First Year MBBS student
<b>Second prize</b>	Chetana Yogesh More	First Year Nursing
<b>Third prize</b>	Mukul Singla	MBBS student

<b>3. Street play</b>		
<b>First Prize</b>	1. Akansha Mahendra Patil 2. Aditee Bhagwan Giri 3. Ankita Rama Rathod 4. Rinkal Naresh Bore 5. Pooja Ananta Patil 6. Manisha Arjun Dongardive 7. Shravani Sunil Khatate 8. Poonam Raju Jadhav 9. Sakshi Bhagat 10. Swati Bhimrao Gopnarayan 11. Rutuja Ram Shinde 12. Prachi Chaudhari 13. Pradnya Bade 14. Sakshi Dipak Kamble 15. Bhavika Krishna Patil	First Year Nursing Students
<b>4. Slogan writing</b>		
<b>First Prize (Tie)</b>	Dr. Nilesh Ramrao Ade Dr. Soham Sinha	2nd Year, Junior Resident community medicine 3rd year, junior resident Pharmacology & Therapeutics
<b>Second Prize (Tie)</b>	Samruddhi Moreshwar Bali Dr Sasmita Sidu	2 nd year, Nursing 3rd year, junior resident Anesthesia



## **STUDENT WING ACTIVITIES:**

The unit has a strong students' wing that carries out various activities. The theme of World Bioethics Day 2023 is “Protecting Future Generations”. The competitions were held in offline mode. Students were involved in planning, organizing and execution of these events under guidance of faculty. Experts from outside and within the institute were invited as judges. ·

### **ARTISTIC POSTER COMPETITION:**

Artistic Poster making competition was held on the theme “Protecting Future Generations”.. Total 44 students participated.

### **ESSAY COMPETITION:**

This was open for all the health professionals in KEM Hospital 27 students participated

### **STREET PLAY COMPETITION:**

This was kept open for medical, dental, physiotherapy, occupation therapy, nursing under graduate and postgraduate students from Mumbai, Navi Mumbai and Thane. Only one team participated

### **SLOGAN WRITING COMPETITION:**

The theme was on “Antibiotic Resistance” and it was open to all Students of GSMC (Medical and Allied Health Sciences) along other MCGM colleges also  
20 students participated

**Looking Ahead:** Training of clinical faculty in Bioethics and AETCOM Module along with sensitizing schools around Parel area with antibiotic resistance & 1st Year MBBS Students.



**Sensitizing Session On Antibiotic Resistance To 1st Year MBBS Students.**

### List of Participants : Essay Competition

Sr no	Name of the participant	Email address	Mobile Number	Branch	Language of Essay writing
1	Chandak Radhika Umesh	radhikachandak2302@gmail.com	8421423202	PT student	English
2	Khan Nida Firdaus	nida2001.khan@gmail.com	8169111580	MBBS student	English
3	Kamble Shruti Siddharth	shrutikamblessk@gmail.com	9987981086	OT student	English
4	Tripathi Sudeeksha Vishwanath	tripathisudeeksha2@gmail.com	9359926384	OT student	English
5	Shaikh kausar Ahmed	shaikhkausar1997@gmail.com	9370816857	OT student	English
6	Singla mukul	aggarwal7m@gmail.com	8708320417	MBBS student	English
7	Gaikwad Vishwatej Vishal	vishwatej1106@gmail.com	9307600629	MBBS student	English
8	Jadhao Piyush Ravindra	prjadhao2112@gmail.com	9359840640	MBBS student	English
9	Chhparia Bharat Sandeep	bharatchhparia@gmail.com	7304077617	MBBS student	English
10	Shelke Pallav Satish	pallavshelke2@gmail.com	9725080375	MBBS student	English
11	Bansod Mayuri Purushottam	mayuribansod24@gmail.com	9322577524	MBBS student	English
12	More chetana yogesh	chetanamore2273@gmail.com	8149465038	Nursing Student	Marathi
13	Nikam Gauri Bhauso	gaurinikam612@gmail.com	8468851709	Nursing Student	English
14	Gavali Rani Raju	ranigawali619@gmail.com	9529010489	Nursing Student	English
15	Babar Gayatri Rajesh	gayatribabar31@gmail.com	7219551304	Nursing Student	English
16	Thorat Anuja Ankush	thoratanuja43@gmail.com	8208816165	Nursing Student	Hindi
17	Dushanbe Tejal Purushottam	tejaldukhande5@g.mail.com	7821070970	Nursing Student	Marathi
18	Sawant shital shantaram	shitalsawant2002@gmail.com	9423024617	Nursing Student	Marathi
19	Santoshi Suryakant vanve	vanvesantoshi23@gmail.com	7264982182	Nursing Student	Marathi
20	Thakur Shravani Sunil	thakurshravani1404@gmail.com	7277004001	Nursing Student	Marathi
21	Pawar Nikita Santosh	santoshpawarlata143@gmail.com	8767463274	Nursing Student	Marathi
22	Deshpande Ninad Mahesh	ninaddeshpande25@gmail.com	9511660698	MBBS student	English
23	Andhale Sayali Sadhu	andhalesayali3@gmail.com	9359481241	Nursing Student	Marathi
24	Giri Aditee Bhagwan	aditeegiri@gmail.com	7875126669	Nursing Student	English
25	Koli Pratiksha Popat	pkoli6720@gmail.com	7499390914	Nursing Student	Marathi
26	Magar Neha Shivaji	nehasmagar1234@gmail.com	8879251411	Nursing Student	English

## POSTER COMPETITION 2023

	Names of Participants	Faculty	Year	Email-ID	Phone No
1	Aditee Bhagwan Giri	Nursing Student	1st Year	<a href="mailto:aditeegiri@gmail.com">aditeegiri@gmail.com</a>	7875126669
2	Kalyani Rajaram Mahajan	Nursing Student	1st Year	<a href="mailto:kalyanimahajan497@gmail.com">kalyanimahajan497@gmail.com</a>	8149968228
3	Shraddha Sharad Zaware	Nursing Student	1st Year	<a href="mailto:shraddhazaware123@gmail.com">shraddhazaware123@gmail.com</a>	9356766065
4	Ritika Popat More	Nursing Student	1st Year	<a href="mailto:ritikamore1506@gmail.com">ritikamore1506@gmail.com</a>	7208717898
5	Megha Ramesh Mule	Nursing Student	1st Year	<a href="mailto:mulemegha29@gmail.com">mulemegha29@gmail.com</a>	9922035227
6	Rutuja Samadhan Waghmare	Nursing Student	1st Year	<a href="mailto:rutujaw920@gmail.com">rutujaw920@gmail.com</a>	8637701102
7	Reshma raju Jagtap	Nursing Student	1st Year	<a href="mailto:reshmajagtap6969@gmail.com">reshmajagtap6969@gmail.com</a>	8928826969
8	Vrushali Vinod Gurav	Nursing Student	1st Year	<a href="mailto:vrushaliguruv2005@gmail.com">vrushaliguruv2005@gmail.com</a>	9309449077
9	Punam Raju Jadhao	Nursing Student	1st Year	<a href="mailto:jadhaopunam121821@gmail.com">jadhaopunam121821@gmail.com</a>	9322159688
10	Prachi Tulsiram Chaudhari	Nursing Student	1st Year	<a href="mailto:prachichaudhari9767@gmail.com">prachichaudhari9767@gmail.com</a>	7020607329
11	Vaishnavi Govind Kashid	Nursing Student	2nd year	<a href="mailto:kashidvaishnavi5@gmail.com">kashidvaishnavi5@gmail.com</a>	8668363029
12	Priya Pandurang Hodbe	Nursing Student	2nd year	<a href="mailto:hodbepriya@gmail.com">hodbepriya@gmail.com</a>	9130152095
13	Sanika Ghanshyam Patil	Nursing Student	2nd year	<a href="mailto:sanikapatil097@gmail.com">sanikapatil097@gmail.com</a>	8983333654
14	Renuka Harikisan Sutar	Nursing Student	2nd year	<a href="mailto:renukasutar191@gmail.com">renukasutar191@gmail.com</a>	9860472448
15	Pratiksha Chavan	Nursing Student	2nd year		
16	Srushti Dipakrao Dhore	Nursing Student	2nd year	<a href="mailto:srudhore00@gmail.com">srudhore00@gmail.com</a>	8999043821
17	Tejaswini Kashinath Bangale	Nursing Student	2nd year	<a href="mailto:anjelibangale79@gmail.com">anjelibangale79@gmail.com</a>	7558219255
18	Rutuja Prasad Vanjare	Nursing Student	2nd year	<a href="mailto:vanjarerutuja2@gmail.com">vanjarerutuja2@gmail.com</a>	8767962122
19	Nikita Bharat Waghmare	Nursing Student	2nd year	<a href="mailto:nikitawaghmare0225@gmail.com">nikitawaghmare0225@gmail.com</a>	8408810802
20	Rohini Jibhau Deshmukh	Nursing Student	2nd year	<a href="mailto:Shital143@gmail.com">Shital143@gmail.com</a>	9158261854
21	Rupali Ramshek Chaur	Nursing Student	2nd year	<a href="mailto:chaurerupali502@gmail.com">chaurerupali502@gmail.com</a>	8010885962
22	Jayashree Kalidas Thombre	Nursing Student	2nd year	<a href="mailto:jayshrithombre@gmail.com">jayshrithombre@gmail.com</a>	8530777099
23	Saloni Arun Jadhav	Nursing Student	3rd year	<a href="mailto:jadhaosaloni91@gmail.com">jadhaosaloni91@gmail.com</a>	8767859031
24	Sakshi Daulatrao Shinde	Nursing Student	3rd year	<a href="mailto:shindesakshi511@gmail.com">shindesakshi511@gmail.com</a>	9322965289
25	Sakshi Pandurang Ambre	Nursing Student	3rd year	<a href="mailto:ambresakshi14@gmail.com">ambresakshi14@gmail.com</a>	8767514700
26	Chetana Yogesh More	Nursing Student	3rd year	<a href="mailto:chetanamore2273@gmail.com">chetanamore2273@gmail.com</a>	8149465038
27	Ziya Rasul Shaikh	Nursing Student	3rd year	<a href="mailto:shaikhziya054@gmail.com">shaikhziya054@gmail.com</a>	7304040155
28	Pratiksha Padmasinh Kadam	Nursing Student	3rd year	<a href="mailto:Pratikshakadam708@gmail.com">Pratikshakadam708@gmail.com</a>	9922052850
29	Santoshi Suryakant Vanve	Nursing Student	3rd year	<a href="mailto:Vanvesantoshi23@gmail.com">Vanvesantoshi23@gmail.com</a>	7264982182
30	Asmita Arjun Ramji	Nursing Student	3rd year	<a href="mailto:asmitaramji@gmail.com">asmitaramji@gmail.com</a>	9307257709
31	Arjavi Manoj Mhatre	Nursing Student	3rd year	<a href="mailto:aarjavimhatre@gmail.com">aarjavimhatre@gmail.com</a>	8390559752
32	Atiksha Ashok Kate	Nursing Student	3rd year	<a href="mailto:Atikshakate12@gmail.com">Atikshakate12@gmail.com</a>	8329599739
33	Shraddha Raju Mapari	Nursing Student	3rd year	<a href="mailto:Shraddhamapari16@gmail.com">Shraddhamapari16@gmail.com</a>	7350397781
34	Karishma Sakharam Pimple	Nursing Student	3rd year	<a href="mailto:Karishmapipmle2003@gmail.com">Karishmapipmle2003@gmail.com</a>	7666412564
35	Komal Dilip Mokase	Nursing Student	3 <sup>rd</sup> Year	<a href="mailto:komaldrmokase@gmail.com">komaldrmokase@gmail.com</a>	8799808987
36	Arati Vijay Korde	Nursing Student	3rd year	<a href="mailto:kordearati4703@gmail.com">kordearati4703@gmail.com</a>	8668431569
37	Prerana Pandurang Natkar	Nursing Student	3rd year	<a href="mailto:prerananatkar@gmail.com">prerananatkar@gmail.com</a>	9322368998
38	Pratiksha Dadasaheb Gayke	Nursing Student	3rd year	<a href="mailto:pratikshagayake5@gmail.com">pratikshagayake5@gmail.com</a>	8177867875
39	Pallav Shelke	MBBS	1st year	<a href="mailto:pallashelke2@gmail.com">pallashelke2@gmail.com</a>	9725080375
40	Bharat Chhaparia	MBBS	1st year	<a href="mailto:bharatchhaparia@gmail.com">bharatchhaparia@gmail.com</a>	7304077617
41	Laxmi Maurya	MBBS	1st year	<a href="mailto:laxmimaurya537@gmail.com">laxmimaurya537@gmail.com</a>	7977557935
42	Gauri Bendre	MBBS	1st year	<a href="mailto:gauriben@gmail.com">gauriben@gmail.com</a>	9136766446
43	Dr. Vrushali Patil	Faculty	Gynaec	<a href="mailto:vrushalipatil@gmail.com">vrushalipatil@gmail.com</a>	8169946558
44	Dr. Mrudula Kulkarni	faculty	Gynaec	<a href="mailto:mrudula1006@gmail.com">mrudula1006@gmail.com</a>	8095202102

### List of Participants : Slogan Writing Competition

Sr. No	Names of Participants	Faculty	Year	Email ID	Phone No
1	Aditee Bhagwan Giri	Nursing	1 <sup>st</sup> year	<a href="mailto:aditeegiri@gmail.com">aditeegiri@gmail.com</a>	7875126669
2	Tejashri Rameshwar Hange	Nursing	1 <sup>st</sup> year	<a href="mailto:hangetejashel@gmail.com">hangetejashel@gmail.com</a>	8329290637
3	Riya Shivaji Gunjal	Nursing	1 <sup>st</sup> year	<a href="mailto:riyagunjal2033@gmail.com">riyagunjal2033@gmail.com</a>	9075680915
4	Siddhi Milind Bhosale	Nursing	1 <sup>st</sup> year	<a href="mailto:siddhibhosale2183@gmail.com">siddhibhosale2183@gmail.com</a>	9359481241
5	Sayali Sadhu Andhale	Nursing	1 <sup>st</sup> year	<a href="mailto:sayaliandhale3@gmail.com">sayaliandhale3@gmail.com</a>	9322965289
6	Sakshi Daulatrao Shinde	Nursing	3 <sup>rd</sup> year	<a href="mailto:shindesakshi570@gmail.com">shindesakshi570@gmail.com</a>	8799808987
7	Komal Dilip Mokase	Nursing	3 <sup>rd</sup> year	<a href="mailto:komalmokase@gmail.com">komalmokase@gmail.com</a>	7350397781
8	Shraddha Rajumapari	Nursing	3 <sup>rd</sup> year	<a href="mailto:shraddhamapari16@gmail.com">shraddhamapari16@gmail.com</a>	7350397781
9	Pratiksha P admsinh kadam	Nursing	3 <sup>rd</sup> year	<a href="mailto:pratikshakadam708@gmail.com">pratikshakadam708@gmail.com</a>	9922052850
10	Santoshi Surykant Vanve	Nursing	3 <sup>rd</sup> year	<a href="mailto:vanvesantashi23@gmail.com">vanvesantashi23@gmail.com</a>	7264982182
11	Samruddhi Moreswar Bali	Nursing	2 <sup>nd</sup> year	<a href="mailto:balisamruddhi756@gmail.com">balisamruddhi756@gmail.com</a>	9082493545
12	Vaishnavi Ramchandra Andhale	Nursing	2 <sup>nd</sup> year	<a href="mailto:Vaishnaviandhale24@gmail.com">Vaishnaviandhale24@gmail.com</a>	9699175653
13	Dr Chayanika Biswas	Nursing	2 <sup>nd</sup> year	<a href="mailto:drchayanika@protonmail.com">drchayanika@protonmail.com</a>	
14	Dr.Nilesh Ramrao Ade	community medicine	2nd Year, Junior Resident	<a href="mailto:nileshade1996@gmail.com">nileshade1996@gmail.com</a>	9604472476
15	Dr Sasmita Sidu	Anesthesia	3rd year, junior resident	<a href="mailto:sumi.sasmita@gmail.com">sumi.sasmita@gmail.com</a>	□□□□□□□□□□
16	Dr.Soham Sinha	Pharmacology & Therapeutics	3rd year, junior resident	<a href="mailto:sohamsinha1217@gmail.com">sohamsinha1217@gmail.com</a>	8910971639
17	Darsita Dhiren Jatakia	MBBS	3 <sup>rd</sup> year	<a href="mailto:jatakia.darsita@gmail.com">jatakia.darsita@gmail.com</a>	9769169277
18	Devanand Patil	Anesthesia	2nd year, Junior resident	<a href="mailto:devahot99@gmail.com">devahot99@gmail.com</a>	9980543405
19	Swara Shedge	MBBS	1 <sup>st</sup> year	<a href="mailto:swarashedge9@gmail.com">swarashedge9@gmail.com</a>	9819837819
20	Dr Ramalakshmi CS	Community medicine	2nd Year, Junior Resident	<a href="mailto:ramalakshmi192@gmail.com">ramalakshmi192@gmail.com</a>	6379024375

### List of Outgoing Students' Wing Members

Sr No	Name of Student	Course
1	Alisha Sayyad	Final Year MBBS Students
2	Paras Arora	
3	Vaibhavi Tapade	
4	Anusha Kapileshwar	Physiotherapy Students
5	Kinjal Lapasia	
6	Sampada Sitaram Sawant	Third Year Nursing Students
7	Rutuja Subhash Bhoir	
8	Swapnali Kailas Hile	
9	Neha Brijesh Yadav	
10	Pooja Shivaji Hajare	
11	Priyanka Gajanan Bunde	
12	Tina Prasad Parkar	Occupational therapy intern



## Street Play Competition 2023 participants List

### Nursing Students

Sr. No	Participants Name	Contact No.	Email Id
1	Akansha Mahendra Patil	9604204080	<a href="mailto:patilakansha@gmail.com">patilakansha@gmail.com</a>
2	Aditee Bhagwan Giri	7875126669	<a href="mailto:aditeegiri@gmail.com">aditeegiri@gmail.com</a>
3	Ankita Rama Rathod	8766412638	<a href="mailto:ankitarathod8766@gmail.com">ankitarathod8766@gmail.com</a>
4	Rinkal Naresh Bore	8986802680	<a href="mailto:borerinkal7@gmail.com">borerinkal7@gmail.com</a>
5	Pooja Ananta Patil	9356990477	<a href="mailto:poojapatil7651@gmail.com">poojapatil7651@gmail.com</a>
6	Manisha Arjun Dongardive	8767435843	<a href="mailto:mdongaedive754@gmail.com">mdongaedive754@gmail.com</a>
7	Shravani Sunil Khatate	8451909447	<a href="mailto:shravanikhatate55@gmail.com">shravanikhatate55@gmail.com</a>
8	Poonam Raju Jadhav	9322159688	<a href="mailto:jadhavpoonam121821@gmail.com">jadhavpoonam121821@gmail.com</a>
9	Sakshi Bhagat	9529176824	<a href="mailto:sakshibhagat1224@gmail.com">sakshibhagat1224@gmail.com</a>
10	Swati Bhimrao Gopnarayan	7448025694	<a href="mailto:swatigopnarayn50@gmail.com">swatigopnarayn50@gmail.com</a>
11	Rutuja Ram Shinde	9850949166	<a href="mailto:rutujaramshinde29@gmail.com">rutujaramshinde29@gmail.com</a>
12	Prachi Chaudhari	7020607329	<a href="mailto:prachichaudhari9767@gmail.com">prachichaudhari9767@gmail.com</a>
13	Pradnya Bade	9699405842	<a href="mailto:bedepradnya27@gmail.com">bedepradnya27@gmail.com</a>
14	Sakshi Dipak Kamble	9324297075	<a href="mailto:kamblesakshi81022@gmail.com">kamblesakshi81022@gmail.com</a>
15	Bhavika Krishna Patil	8104483317	<a href="mailto:bhavikakp910@gmail.com">bhavikakp910@gmail.com</a>



First Prize in Slogan writing - Dr. Nilesh Ramrao Ade



GSMC MUHS BIOETHICS UNIT  
SETH GS MEDICAL COLLEGE & KEM HOSPITAL, PAREL, MUMBAI



Nearly, **1.27 million** deaths  
worldwide & are **rising**.

If not now, when?

**“Don’t let the bugs,  
ruin our drugs!”**

Let us fight for our existence,  
against antibiotic resistance!



First Prize in Slogan writing - Dr. Soham Sinha



**GSMC MUHS INTERNATIONAL CHAIR BIOETHICS  
UNIT & STUDENTS' WING**







Second Prize

Karishma Sakharam Pimple - 3rd Year Nursing