International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 06 | June - 2022 Impact Factor: 7.185 ISSN: 2582-3930

The Influence of IT in the Field of Biomedicine

Prof. RITU SANGWAN , CHANDER SHEKHAR

MASTER OF BUSINESS ADMINISTRATION

SCHOOL OF BUSINESS

GALGOTIAS UNIVERSITY

ABSTRACT

The goal of this study is to determine the impact of **The influence of IT in the field of biomedicine** in Greater Noida.

The advantages of health information technology (IT) include facilitating communication between health care providers; improving medication safety, tracking, and reporting; and promoting quality of care through optimized access to and adherence to guidelines. Health IT systems permit the collection of data for use for quality management, outcome reporting, and public health disease surveillance and reporting. However, improvement is needed with all health IT, especially regarding design, implementation, and integration between platforms within the work environment. Robust interoperability is critical for safe care, but this goal has proved elusive. Significant patient safety concerns already have been recognized; it is important to keep patient safety and quality as the primary focus.

To encourage the development of formal computing methods, and their application in biomedical research and medical practice, by illustration of fundamental principles in biomedical informatics research; to stimulate basic research into application software design; to report the state of research of biomedical information processing

projects; to report new computer methodologies applied in biomedical areas; the eventual distribution of demonstrable software to avoid duplication of effort; to provide a forum for discussion and improvement of existing software; to optimize contact between national organizations and regional user groups by promoting an international exchange of information on formal methods, standards and software in biomedicine. Computer Methods and Programs in Biomedicine covers computing methodology and software systems derived from computing science for implementation in all aspects of biomedical research and medical practice. It is designed to serve: biochemists; biologists; geneticists; immunologists; neuroscientists; pharmacologists; toxicologists; clinicians; epidemiologists; psychiatrists; psychologists; cardiologists; chemists; (radio)physicists; computer scientists; programmers and systems analysts; biomedical, clinical, electrical and other engineers; teachers of medical informatics and users of educational software.

INTRODUCTION

Biomedicine is a branch of medical sciences that ties biology and clinical practice together. Biomedicine or medical biology is a major facet of modern health care and lab diagnostics. Biomedicine and biotechnology go hand in hand, with that being said, technology has a great impact on the advancement of biomedicine. With the invention of new technologies and production of new products, the biological sciences have seen great advancements over the past 30 years. It is now becoming more prominent for scientist to apply biological engineering and biotechnology Clinical studies have tended to benefit from newly developed biomaterials and technologies for therapy and diagnostics, as well as medical instruments. Scientists have evaluated the influence of polymer-based devices on cell surfaces at the final products level, also the polymers used in regenerative medicine. Plasma treated materials have had an important role in medicine. Plasma treated materials are undergoing fast development. An application of technology that has had great effects on biomedicine is the application of Terahertz (THz) technology. Detecting diseases to make diagnostics more efficient and improved imaging to recognize tumors more efficiently are the more important THz medical applications.

The influence of IT in the field of biomedicine

'Market' businesses' constituents. Social Media marketing is the process of empowering individuals to promote their

What is biomedicine?

Biomedicine is a rapidly changing sector that supports Australia's healthcare systems. At different points in our lives, we all benefit from the expertise of biomedical scientists. From blood tests and diagnostics to pharmacology research, biomedicine uses an understanding of human biology to support better health outcomes. With this in mind, it's unsurprising that research in biomedicine is cutting-edge.

Someone who knows this incredibly well is Andy Koh, a PhD candidate and Associate Teaching Fellow at Bond University on Queensland's Gold Coast. According to Andy, biomedical research is crucial for several reasons, but particularly for early interventions.

"Having blood tests, and being able to screen for different markers like cholesterol, can really help a clinician determine what type of treatment and what dosages should be appropriate for their patients," he says.

Also at Bond University is Donna Sellers, Head of Program and Associate Professor in Biomedical Sciences at the Faculty of Health Sciences and Medicine. Donna describes biomedical research as dedicated to "working out what's different between patients in terms of their biological fingerprint" and leveraging that knowledge to support the best outcomes for them.

Shaping the future of healthcare

In the coming decades, healthcare is set to become increasingly personalised, integrating technology, design and engineering advances with medical treatment. As a result, Donna explains, people with the training to couple biomedicine with data science are essential to that future - and will be in high demand.

“The more we advance screening and diagnostic technologies, the more we need technicians who can look at the results. We need people who can synthesise the data and make sense of it, so it can be fed back into the patient’s treatment and improve our healthcare,” she says.

After scientists had developed the frst digital computers in the 1940s, society was told that these new machines would soon be serving routinely as memory devices, assisting with calculations and with information retrieval. Within the next decade, physicians and other health professionals had begun to hear about the dramatic effects that such technology would have on clinical practice.More than seven decades of remarkable progress in computing have followed those early predictions, and many of the original prophesies have come to pass. Stories regarding the “information revolution”, “artifcial intelligence”, and “big data” fll our newspapers and popular magazines, and today’s children show an uncanny ability to make use of computers (including their handheld mobile versions) as routine tools for study, communication, and entertainment. Similarly, clinical workstations have been available on hospital wards and in outpatient offces for decades, and in some settings have been supplanted by mobile tablets with wireless connectivity.

Not long ago, the health care system was perceived as being slow to understand information technology and slow to exploit it for its unique practical and strategic functionalities.

This is no longer the case. The enormous technological advances of the last four decades—

personal computers and graphical interfaces, laptop machines, new methods for humancomputer interaction, innovations in mass storage of data (both locally and in the “cloud”), mobile devices, personal healthmonitoring devices, the Internet, wireless communications, social media, and more—have all combined to make use of computers by health workers and biomedical scientists part of today’s routine. This new world is already

upon us, but its greatest infuence is yet to come as today’s prominent innovations such as electronic health records and decision-support software are further refned. This book will teach you about our present resources and accomplishments, and about gaps that need to be addressed in the years ahead.

When one considers today's penetration of computers and communication into our daily lives, it is remarkable that the frst personal computers were introduced as recently as the late 1970s; local area networking has been available only since the 1980s; the World Wide Web dates only to the early 1990s; and smart phones, social networking, tablet computers, wearable devices, and wireless communication are even more recent. This dizzying rate of change, combined with equally pervasive and revolutionary changes in almost all international health care systems, makes it diffcult for public-health planners and healthinstitutional managers to try to deal with both issues at once. adopted in health settings, unintended consequences have emerged, such as ransomware and other security challenges that can compromise the protection and privacy of patient data. Yet many observers now believe that rapid changes in both technology and health systems are inextricably related. We can see that planning for the new health care environments of the coming decades requires a deep understanding of the role that information technology is likely to play in those environments.What might that future hold for the typical practicing clinician? As we discuss in detail in no applied clinical computing topic is gaining more attention currently than is the issue of electronic health records(EHRs). Health care organizations have largely replaced their paper-based recording systems, recognizing that they need to have digital systems in place that create opportunities to facilitate patient care that is safe and effective, to answer questions that are crucially important for strategic planning, to support a better understanding of how they and their providers compare with other organizations in their local or regional competitive environment, and to support reporting to regulatory agencies. In the past, administrative and fnancial data were the major elements required for planning, but in recent years comprehensive clinical data have also become important for institutional self-analysis and strategic planning. Furthermore, the ineffciencies and frustrations associated with the use of paper-based medical records are well accepted (Dick and especially when inadequate access to clinical information is one of the principal barriers that clinicians encounter when trying to increase their effciency in order to meet productivity goals for their practices. Biomedical Technology Sub-Fields

Biomedical Informatics

Biomedical informatics is the branch of biomedical technology that deals with the tracking and measuring of biomedical data by using computers and technology. As a biomedical technician, you'd use the information they gather to better understand different issues, such as how diseases spread or how well health systems are performing.

Biomedical Engineering

The branch of biomedical technology concerned with the application of engineering design and principles to medical and biological issues is called biomedical engineering. Your work as a biomedical engineer would involve developing and growing synthetic organs or creating prosthetic limbs to replace diseased or injured parts of the human body.

Biomedical Research

Biomedical research is the study of various chemicals and substances used to develop and improve medicines that are used to treat disease. The research is often conducted using equipment and methods developed by people working in other branches of biomedical technology.

Biomedical Science

Biomedical science, also known as health science, is the application of chemistry, biology, physics, engineering, and other scientific disciplines to the research and treatment of human health issues. Biomedical technology and biomedical science overlap in many aspects, but as a biomedical scientist, you'd focus more on the actual research and treatment of disease, while as a biomedical technician, you'd deal more with researching and developing technologies and methodologies used to treat disease.

The future of biomedical innovation requires accessing and managing distributed networks of knowledge providers A more open architecture for innovation in health is emerging. Collaborations, public-private partnerships, consortia, innovation networks, brokerage facilities, prizes, and data sharing/exchange platforms are increasingly used to access dispersed sources of data, information, know-how, materials, compounds, software, methodologies, expertise, and patented innovations. User-driven and user-centric innovation is a new trend in biomedicine and health innovation. Formal networks of doctors and surgeons and other health professionals help provide data and feedback to innovators. Improved access to and exchange of biological samples and data is critically important to advancing the global scientific and medical knowledge base. The fusion and use of diverse sources of data, knowledge and technologies may require that both technical (e.g. for interoperability) and legal (e.g. intellectual property) solutions be found. As many knowledge assets are

externally distributed, organisations derive value from the ability to access, manage and exploit knowledge from multiple sources. Open or networked health innovation requires organisation, frameworks, financing, good information and asset management and vision. These are important for both public and private research organisations. New research and business models more efficiently exploit such distributed networks of knowledge. However, there is no single model of firm or interfirm organisation which has emerged as a clear success. Governments should tolerate and encourage experimentation and search for emerging best practices. Regulations have an impact on the incentives to participate in networks and consortia. There is a need to reduce bureaucracy and red tape, to make sure conflict of interest rules are reasonable, and to clarify anti-trust considerations.

High-quality biomedical research increasingly relies on biological and health-related infrastructures where large and diverse sources of biological, health and personal data and samples are stored, made interoperable and made accessible to a range of potential scientific users globally.

In the life sciences, governments have a strong policy interest in developing and making accessible data, information, and knowledge to accelerate innovation. The circulation of knowledge is essential to innovation performance. New ideas emerge from the combination of existing knowledge from various sources. For example, within the scientific community, there is consensus that given the vast complexity of the human genome, progress in understanding disease will depend on the establishment, harmonisation and broad use of human biobanks and genetic research databases and in maintaining these scientific resources over the long term. But open or networked health technology innovation requires organisation, frameworks, financing, quality information, asset management and vision. Governments need to provide significant financial and human capital investments to assure the sustainability of research infrastructures. Lean economic times are when more not less attention needs to be paid to such infrastructure. IT infrastructures are the backbone that allow the networking of disparate databases and repositories. When building IT infrastructures and databases, t limit the future scope of research or collaborations. Quality assurance/management of the materials and data contained in research infrastructures is a prerequisite for high quality research and for facilitating exchange of data and samples. International guidelines or standards help establish good practices that can raise the quality of the materials and data and build trust and reputation locally and globally. Governments should work to ensure adherence to international guidelines such as the OECD Guidelines for Human Biobanks and Genetic Research Databases that facilitate wide access to data and materials for biomedical advances while ensuring that research

is conducted in a manner respectful of participants, and that upholds human dignity, fundamental freedoms and human rights. They should endeavour to develop further guidance or standards where needed.

New technologies such as diagnostic biomarkers and synthetic biology will involve a medley of different intellectual property rights (i.e. database protection, patents on software, algorithms, medical procedures and business methods). Differences across OECD countries in the type of intellectual property protection available will likely have an important impact on business models, industry strategies and the types of products that are ultimately commercialized. These new fields will present new challenges and require responses unlike the patent policies developed over the last decade.

The rapid pace of scientific and technological advancement in the life sciences, the complexity and heterogeneity of knowledge relevant to health innovation across multiple fields and subfields and the need to integrate the vast amounts both of scientific and clinical data all combine to create challenges for achieving the interoperability, knowledge integration and accumulation necessary to efficiently harvest the full benefits of the existing knowledge base. New models of health innovation and knowledge management are proving necessary for a number of objectives: To improve the efficiency of biomedical research and facilitate incremental innovation (getting more use from knowledge and involving more organisations and individuals in research). To improve the translation of research from academia to industry. To increase evidence-based treatment options and deliver on the promise of personalised medicines and targeted therapies, to deliver better public health in general (across a broad range of disease groups and a broad range of the population) rather than just better private health for a select few. To tackle new diseases and treatment paradigms, including high value added diagnostics, antibiotics, neglected infectious diseases. Some of the changes in business models are driven by technological opportunity. The move away from dependence on blockbuster drugs for treating whole populations and toward therapies that are tailored for treating individual patients, may be facilitated by a broader use of biomarkers to make early go/no go decisions in the developmental process and to better define diseases at the molecular and genetic levels. There is growing recognition, however, however, that vast amounts of data, information and knowledge in the health and biotechnology industries are held proprietary, though not part of the core business, but could be exchanged for the benefit of buyers and sellers (examples include precompetitive research data, data about research and clinical failures, in house materials and databases). One way to make more efficient use of such access to and use of a wide variety of types of knowledge. Examples of such mechanisms include public private partnerships, consortia, innovation networks,

brokerage facilities, prize mechanisms, and data sharing/exchange platforms. Knowledge markets make knowledge available, accessible, usable and sometimes tradable.

Government, industry and the medical community recognize that there is a need to constitute an evidence base for the evaluation of biomarkers. The existing evidence base, though vast, is fragmented and ill suited to determining clinical utility. Since building the evidence base presently falls outside the purview of either industry or government and will entail possibly large costs, further reflection is needed on how funding or other incentives could be deployed as there is at present a lack of consensus on options. Payers (e.g. governments and insurers) need to better understand the advantages and disadvantages (e.g. cost-effectiveness) of using biomarkers as diagnostic tests in establishing their payment and reimbursement plans. Regulatory agency industry dialogue established under effective governance arrangements can help develop stable, predictable, transparent regulatory pathways; improve biomarker validation and pave the way for regulatory acceptance; take on the challenge of personalised medicines and targeted therapies; tackle methodologies for next generation clinical trial design; create safe havens for new approaches to knowledge sharing and risk sharing. It is critically important to be able better to measure the value of new technologies. New tools, frameworks, and processes for the evaluation of new technologies may need to be developed that capture elements such as increased effectiveness, cost effectiveness and increased specificity within patient populations. Pharmaco-economic assessment offers yet greater promise for arriving at socially optimal outcomes in terms of promoting the right level and type of R&D investment, by giving better signals to industry as to which innovations are most highly valued. It can also be used as a tool to establish market-based incentives for investment in treatments for rare conditions.

End users of new biomedical technologies have an increasingly strong impact on innovators and public policy Public acceptance and trust is a critical factor in uptake and diffusion. Establishing clear policies with regard to the privacy and security of personal data is fundamental and applies to a wide range of health technologies (e.g. genetics and genomics, electronic health records). But some access to potential tensions between securing and sharing some information. Governments have a central role to play in finding an appropriate balance between individual rights and public health/research priorities.

New technologies may challenge the way health care is delivered by medical professionals and in health systems. Their uptake and diffusion may require changes to existing practices and relations that go beyond training or capital investment. Diagnostic biomarkers, for example, will require that physicians and health

care providers be educated and also receive statistical training to understand tests and results. Moreover, information about the clinical utility of biomarkers will be needed at point of care as it may affect the process of care, and this will need to be addressed if there is to be effective implementation and there is to be widespread use of biomarker technologies and capturing of the benefits associated with this. Direct to consumer tests and services are increasingly available. There is no consensus whether and what oversight and governance should be in place though the OECD Guidelines on Quality Assurance of Molecular Genetic Tests do provide principles and best practices for some relevant aspects. This is a subject for further consideration by governments. End users also can have direct impact on what research is done, either through systems of feedback of patient outcomes or increasingly through patient-focused non-profits directly influencing or funding research.

Emerging Research Models for Biomedicine and Health Innovation. This report takes a systemic view of innovation systems. It identifies four different approaches to improving the translational research process, all of which share the objective of facilitating the process of discovery research, development and delivery and of bringing biomedical innovations from invention to market faster. The report presents four examples initiatives (Innovative Medicine Initiative, Top Institute Pharma, MaRs, etc.) The report asks: (1) How do these initiatives differ from traditional approaches? (2) Are disparate initiatives and approaches above part of a movement toward the development of a/or several new research and business models that could revive drug discovery and health innovation? (3) What will make the emergence of such new business models possible? The report also identifies measure governments can take to influence health innovation processes and facilitate the development and diffusion of needed new products and services.

Biomedical engineering, or bioengineering, is the application of engineering principles to the fields of biology and health care. Bioengineers work with doctors, therapists and researchers to develop systems, equipment and devices in order to solve clinical problems.

Biomedical engineers have developed a number of life-enhancing and life-saving technologies. These include:

Prosthetics, such as dentures and artificial limb replacements.

Surgical devices and systems, such as robotic and laser surgery.

Systems to monitor vital signs and blood chemistry.

Implanted devices, such as insulin pumps, pacemakers and artificial organs.

Imaging methods, such as ultrasound, X-rays, particle beams and magnetic resonance.

Diagnostics, such as lab-on-a-chip and expert systems.

Therapeutic equipment and devices, such as kidney dialysis and transcutaneous electrical nerve stimulation (TENS).

Radiation therapy using particle beams and X-rays.

Physical therapy devices, such as exercise equipment and wearable tech.

The practice of biomedical engineering has a long history. One of the earliest examples is a wood and leather prosthetic toe found on a 3,000-year-old Egyptian mummy. Before that, even simple crutches and walking sticks were a form of engineered assistive devices, and the first person to fashion a splint for a broken bone could be considered to have been an early biomedical engineer.

Biomedical engineering has evolved over the years in response to advancements in science and technology. Throughout history, humans have made increasingly more effective devices to diagnose and treat diseases and to alleviate, rehabilitate or compensate for disabilities or injuries. One example is the evolution of hearing aids to mitigate hearing loss through sound amplification. The ear trumpet, a large horn-shaped device that was held up to the ear, was the only "viable form" of hearing assistance until the mid-20th century, according to the Hearing Aid Museum. Electrical devices had been developed before then, but were slow to catch on, the museum said on its website.

The works of Alexander Graham Bell and Thomas Edison on sound transmission and amplification in the late 19th and early 20th centuries were applied to make the first tabletop hearing aids. These were followed by the first portable (or "luggable") devices using vacuum-tube amplifiers powered by large batteries. However, the first wearable hearing aids had to await the development of the transistor by William Shockley and his team at Bell Laboratories. Subsequent development of micro-integrated circuits and advance battery technology has led to miniature hearing aids that fit entirely within the ear canal.

Some notable figures in the history of biomedical engineering and their contributions include:

Forrest Bird (mechanical ventilator).

John Charnley (artificial hip replacement).

Graeme Clarke (cochlear implant).

Willem Einthoven (electrocardiograph).

Wilson Greatbatch (internal cardiac pacemaker).

Charles Hufnagel (artificial heart valve).

Robert Jarvik (artificial heart).

Willem Johan Kolff (kidney dialysis).

Rene Laënnec (stethoscope).

Michel Mirowski (implantable cardioverter defibrillator).

Wilhelm Roentgen (X-rays).

Educational requirements

Biomedical engineers design and develop medical systems, equipment and devices. According to the U.S. Bureau of Labor Statistics (BLS), this requires in-depth knowledge of the operational principles of the equipment (electronic, mechanical, biological, etc.) as well as knowledge about the application for which it is to be used. For instance, in order to design an artificial heart, an engineer must have extensive knowledge of electrical engineering, mechanical engineering and fluid dynamics as well as an in-depth understanding of cardiology and physiology. Designing a lab-on-a-chip requires knowledge of electronics, nanotechnology, materials science and biochemistry. In order to design prosthetic replacement limbs, expertise in mechanical engineering and material properties as well as biomechanics and physiology is essential.

The critical skills needed by a biomedical engineer include a well-rounded understanding of several areas of engineering as well as the specific area of application. This could include studying physiology, organic chemistry, biomechanics or computer science. Continuing education and training are also necessary to keep up with technological advances and potential new applications.

LITERATURE REVIEW

Biomedical Informatics: The Science and the Pragmatics

Edward H. Shortliffe and Michael F. Chiang

The traditional paper-based medical record is now recognized as being woefully inadequate for meeting the needs of modern medicine. It arose in the nineteenth century as a highly personalized "lab notebook"that clinicians could use to record their observations and plans so that they could be reminded of pertinent details when they next saw the same patient. There were no regulatory requirements, no assumptions that the record would be used to support communication among varied providers of care, and few data or test results to fll up the record's pages. The record that met the needs of clinicians a century or so ago struggled mightily to adjust over the decades and to accommodate to new requirements as health care and medicine changed. Today the inability of paper charts to serve the best interests of the patient, the clinician, and the health system is no longer questioned Most organizations have found it challenging (and expensive) to move to a paperless, electronic clinical record. This observation forces us to ask the following questions: "What is a health record in the modern world? Are the available products and systems well matched with the modern notions of a comprehensive health record? needs of individual users as well as the health systems themselves? Are they efficient, easy to

use, and smoothly integrated into clinical workfow? How should our concept of the

comprehensive health record evolve in the future, as technology creates unprecedented

opportunities for innovation?" The complexity associated with automating clinical-care records is best appreciated if one analyzes the processes associated with the creation and use of such

thinking of the record as a physical object (such as the traditional paper chart) that can be moved around as needed within the institution. For example, on the input side an electronic version of

paper chart requires the integration of processes for data capture and for merging information from diverse sources. The contents of the paper record were traditionally organized

severe limitation when a clinician sought to fnd a specifc piece of information that could occur almost anywhere within the chart. To be useful, the electronic record system has to make it easy to access and display needed data, to analyze them, and to share them among colleagues and with

of the record who are not involved in direct patient care. Thus, the EHR, as an adaptation of the paper record, is best viewed not as an object, or a product, but rather as a set of processes that a

organisation puts into place, supported by technology. Implementing electronic records is inherently a systems-integration task. It accordingly requires a custom-tailored implementation at each institution, given the differences in existing systems and practices that must be suitably integrated. Joint development and local adaptation are crucial, which implies that the institution

have local expertise that can oversee and facilitate an effective implementation process, including elements of process re-engineering and cultural change that are inevitably involved.

Biomedical informatics is the branch of health informatics that uses data to help clinicians, researchers and scientists improve human health and provide healthcare. Biomedical informatics is an evolving discipline that has grown along with advances in biomedicine, which applies the principles of the natural sciences, especially biology and biochemistry, to medicine and healthcare. While not solely tied to computers and information technology, biomedical informatics has become more reliant on software, artificial intelligence and cloud computing with the rise of the biotechnology industry and the widespread digitization of personal health data.

Why biomedical informatics is important

Biomedical informatics uses big data and new ways of presenting it, together with traditional scientific research, to reach across medical disciplines to provide clinical insights, uncover disease, treatment and response patterns and point to new lines of scientific and medical inquiry.

Cloud-based supercomputing power has made possible dramatic advances in genomics and DNA sequencing. At the same time, advanced wearable devices are collecting large volumes of physiological data, and sophisticated medical imaging and visualization software and hardware -- such as ultra-high definition displays and 3-D printing -- are providing many more high-quality and relatively inexpensive data sources and ways to view data for clinicians and researchers.

Examples of biomedical informatics

Biomedical informatics can aid a wide range of research and treatment.

For example, a researcher at the University of Pittsburgh's Department of Biomedical Informatics, Roger Day, has studied how computational and biomathematical modeling tools can help provide better biological knowledge that can be applied to individual cancer treatment.

Also, biomedical informaticians in the pharmaceutical drug industry create and manage pharmacovigilance programs to improve the safety of clinical trials and drug testing. Pharmacovigilance software systems use data science and predictive analytics to detect drug trial errors or unknown side effects.

Differences between biomedical informatics, health informatics and clinical informatics

Biomedical informatics focuses on using computational and traditional methods in biology and medicine and on research in genomics, proteomics (the large-scale study of protein), pharmacology and other disciplines that cut across medical disciplines.

Health informatics is broader and more directly related to healthcare treatment approaches. It uses data from specialized healthcare information technologies such as electronic health records and clinical health terminology sets, as well as other sources. Clinical informatics is used in daily patient care by providing physicians, nurses, physical therapists, aides and other clinicians with information that can be used to form a care plan. Clinical informaticians also help caregivers view and use health data from IT systems.

RESEARCH METHODOLOGY

Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic.

To investigate the impact of Role of IT in healthcare in Greater Noida. To obtain primary data, a structured questionnaire was created. A total of 50 people were surveyed. Greater Noida residents are chosen as respondents. Primary data was gathered through direct questioning of respondents, which is a direct method of gathering information by use of a survey or questionnaire. The sample size for this study is 50 people.

DATA AND SOURCE OF DATA

1. **Primary Data:** All relevant data will be collected by distributing questionnaires to the selected consumers.

2. **Secondary Data:** The secondary data will be obtained from published or unpublished literature on the topic and journals, newspapers, websites, books, magazines, case studies, or any other relevant service.

Data Collection Method: The data is gathered using both primary and secondary sources. We acquired primary data by using the Google Forms platform, which is a free web-based surveying application. We gathered secondary data by interviewing a few people about their shopping patterns and reviewing prior research articles on the subject.

Sample size: To create the research Lead, we gathered data from 50 people who replied.

Questionnaire Design: Our Questionnaire's questions are arranged as multiple choice questions. This is done in order for the researcher to determine the role of IT in Healthcare.

Scope of the research

In light of the study's objectives, conducting the research from the perspective of the consumer would be the most effective technique. The researcher is conducting this research in order to assist consumers in determining the factors that influenced their shopping decisions as a result of social media. Because one of the main goals of marketing is to analyse consumer wants, the data collected through the questionnaire is from the consumer's point of view, enabling for new insights to be uncovered. The study also aims to inform readers on the importance of social media websites and applications in consumer decision-making. The focus of the research is on end-user behaviour.

DATA ANALYSIS:

1. BACKGROUND

The analysis of the data collected from the questionnaire is presented in the next section. Individuals were emailed the set of questions via Google Forms. Because the survey was distributed to 50 people and there were 50 people who responded, the overall percentage of replies was 100. (Percent).

The analysis and findings will be provided in the following parts.

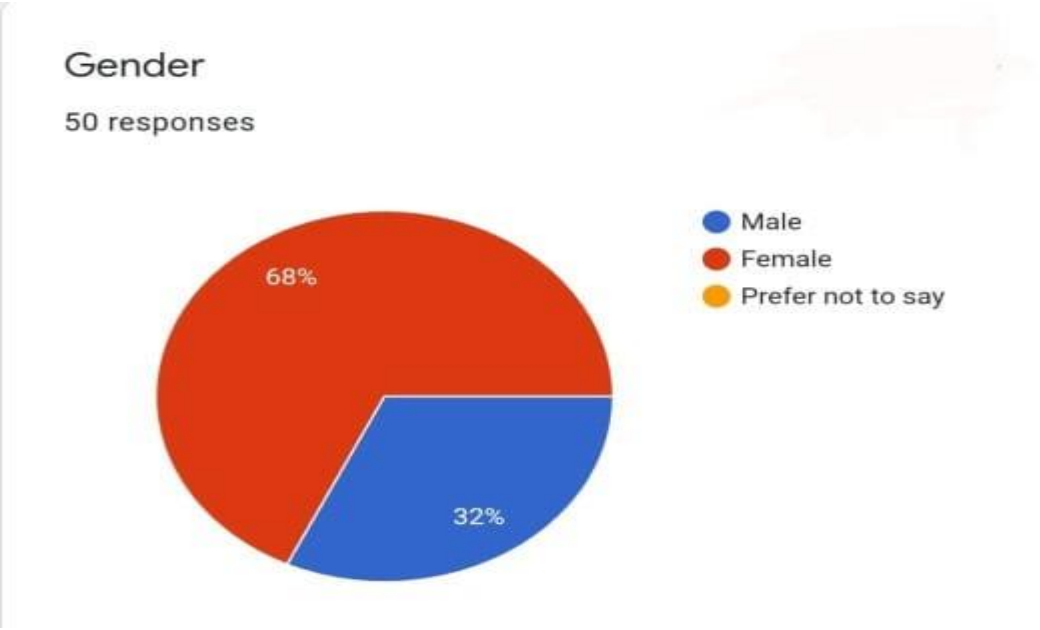

Figure: 1 The following pie chart shows the gender distribution of the respondents.

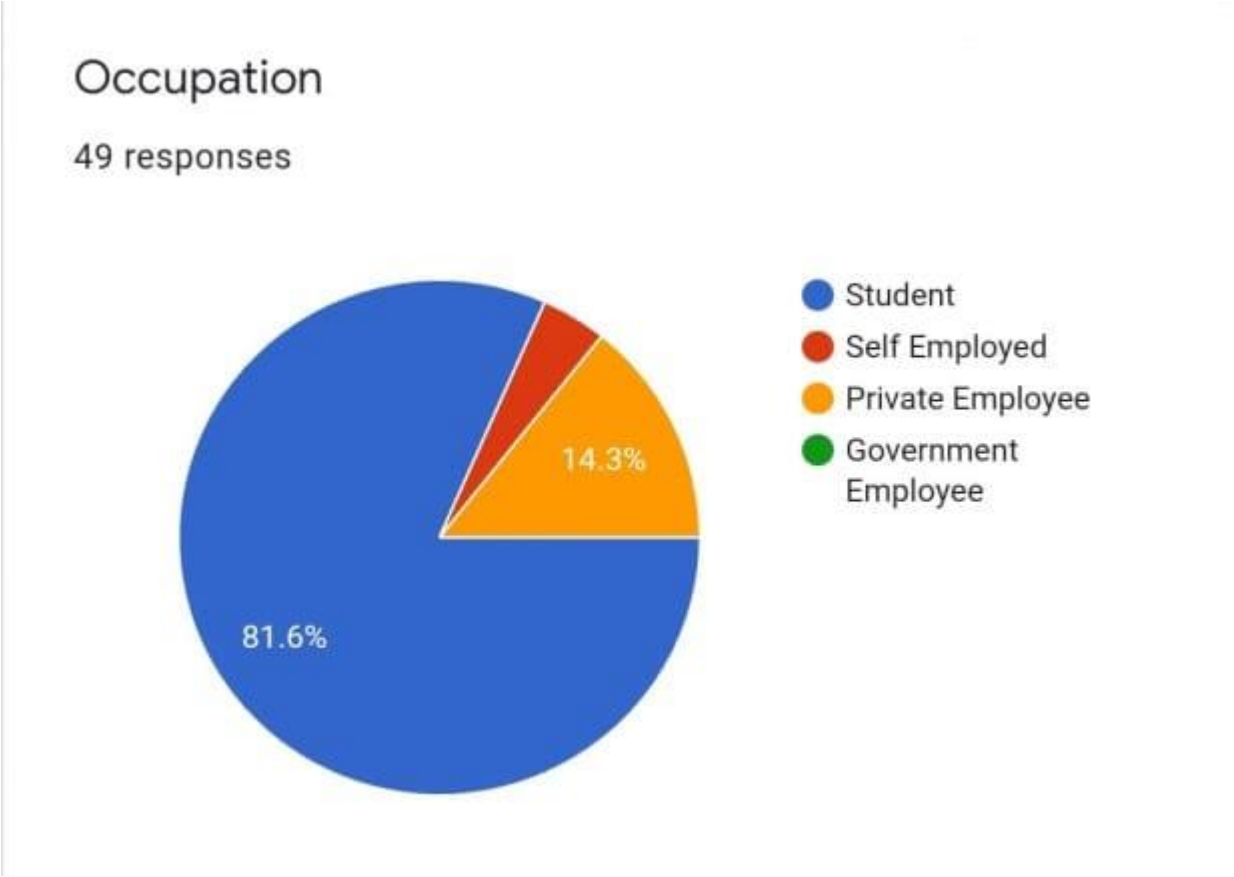

Figure 2: In the occupation of the respondents, we have diversified the respondents into students, self-employed, private employee or government employee

The above pie chart shows the occupation. It shows that 81.6% are students, 14.3% are private employee.

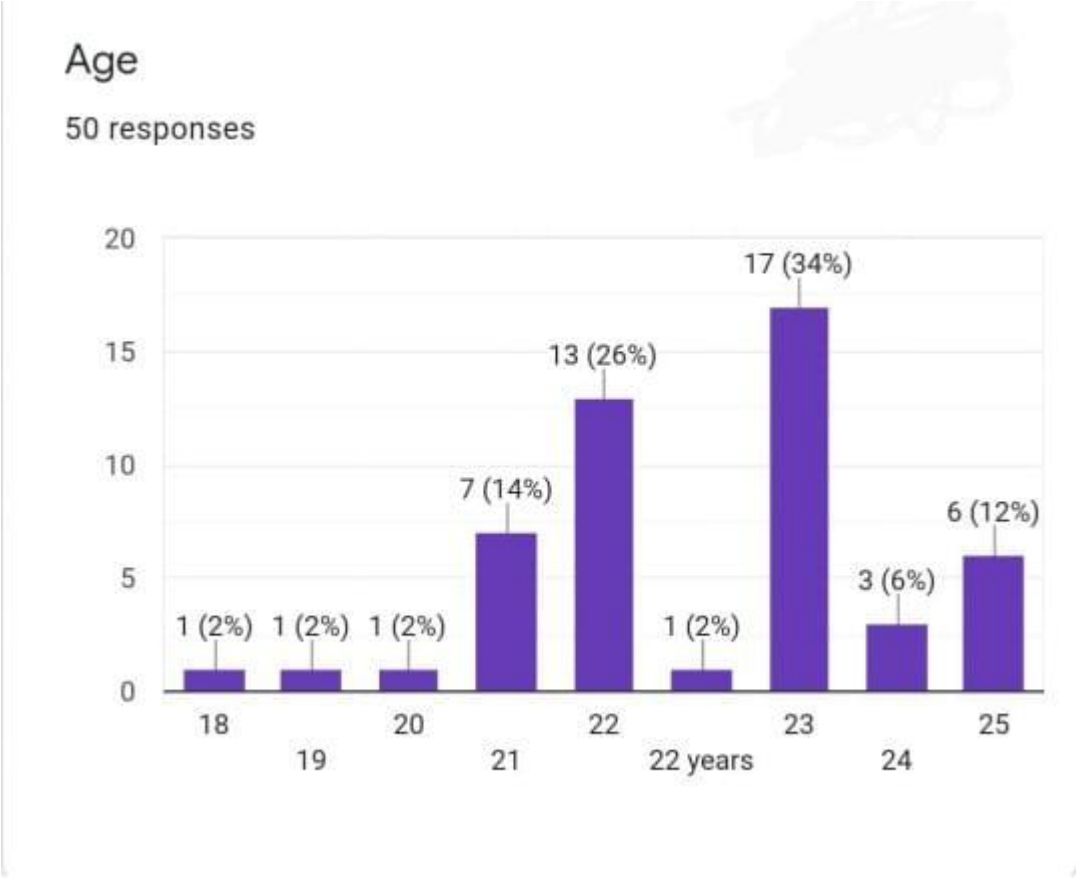

Figure 3: We had analyzed the age of people who buys FMCG products are from the age 18 years to 25 years. 34% of people are of 23 years, 26% of people are of 22 years, and others.

Findings

1. The maximum number of the respondents was from the age group of 20-25 as this is the age group which responds that there is high scope of IT in Healthcare.

2. Data from survey shows that nearly more than half of the people tthink that IT will takeover Heathcare industry in coming 10- 15 years.

3. Above data also suggests that AI will play important role in taking over healthcare, 39% of the respondents agreed on that.

4. The data from the survey suggests that almost 66.7% of the respondents believe that in coming 5 years IT will not affect Healthcare much.

5. The data from the survey shows that 47% of the respondents role of IT is limited before AI.

6.The data from the survey shows that almost 84.6% of the respondents believes that IT will revolutionise Healthcare.

8. People's Prefer heathcare services online with the use of IT.

CONCLUSION

People beleive that the Heathcare IT will change the ways of Hospitols completely in coming time.

Health IT has become an integral part of the practice of medicine. As with any new technology, health IT brings many potential benefits and as well as potential concerns. The current literature to date, reflects outcomes at single sites or institutions. National estimates are extrapolations from these single-site studies. As the implementation and use of health IT systems increase, it is important to keep patient safety and quality as a major focus. Telehealth has made it possible for patients to receive care without an in-person office visit. In addition, remote patient monitoring is becoming more widely accepted. Having exponentially grown in popularity throughout the pandemic, this now includes wearable technology with impressive capabilities, from remote monitoring of vitals to remote echocardiograms. If not for the pandemic, it probably would have taken the healthcare industry another decade to reach where it is today.

One of the biggest challenges within healthcare today is the lack of data sharing between providers. Patient data and information are not routinely shared across providers, which can cause avoidable challenges, frustrations, delays and potentially harmful outcomes for patients. It can also create issues for health systems. Secure, HIPAA-compliant sharing of patient data and information across medical providers will be one of the most

important advancements in the coming decade.Withholding patient data and information leads to the accrual of extraordinary amounts of unnecessary healthcare costs. This is due, in large part, to inessential or redundant medical labs and workups being done because providers do not have access to a patient's full medical history. The act of not sharing important patient data and information can also lead to unnecessary medical treatments — which, in some cases, can be dangerous for patients.

RECOMMENDATIONS

The benefits of health information technology (IT) include its ability to store and retrieve data; the ability to rapidly communicate patient information in a legible format; improved medication safety through increased legibility, which potentially decreases the risk of medication errors; and the ease of retrieval of patient information.

The potential to improve patient safety exists through the use of medication alerts, clinical flags and reminders, better tracking and reporting of consultations and diagnostic testing, clinical decision support, and the availability of complete patient data. Data gathered through the use of health IT can be used to evaluate the efficacy of therapeutic interventions and have been demonstrated to lead to improvements in the practice of medicine 1. Alerts can optimize adherence to guidelines and evidence-based care 2. Record uniformity can be designed to reduce practice variations, conduct systematic audits for quality assurance, and optimize evidenced-based care for common conditions 3.

Health IT is increasing patient engagement as consumers of health care. It allows patients access to their medical records, which helps them to feel more knowledgeable about their conditions and encourages them to actively participate in shared decision making.

Outside the patient encounter, it can improve follow-up for missed appointments, consultations, and diagnostic testing. A health care provider can search for specific cohorts of patients within a practice to monitor and improve adherence to indicated health care such as mammograms, Pap tests, or measurement of hemoglobin A1C levels.

REFERENCES

1. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2015/01/patient-safety-and-health-information-technology.

2. https://www.hsph.harvard.edu/ecpe/8-healthcare-quality-improvement-tips/

3. https://en.wikipedia.org/wiki/Health_information_technology

4. https://www.quora.com/What-is-the-future-of-healthcare-IT

5. https://www.cloud4c.com/lp/healthcare-in-a-box/?utm_source=techshu-search&utm_medium=cpc&utm_campaign=healthcare_in_a_box_srch_india&utm_term=healthcare%20it&utm_content=561099303112&utm_device=c&gclid=Cj0KCQjw4PKTBhD8ARIsAHChzRIoF2teDJ7vV9Bq8vpmXQg9wtxSpRwo9Pd55Px8JPh_9MAdkWdbO1gaAn_nEALw_wcB