

Women in Healthcare Innovation and Technology



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GENDERED VOICES

Introduction

In a COVID-19 context which has compelled health systems to improve in terms of innovation and new technologies, women have played an important role to ensure the provision of due care and treatment to the population. Despite representing a large portion of the healthcare workforce, women are seemingly underrepresented in decision-making positions in this sector in Mauritius. However, the examples of women who have successfully overcome gender barriers in the field of Healthcare, Innovation and Technology exist, and their numbers will hopefully keep increasing in the years to come. In this edition of Gendered Voices, Ms. Anita Beeharry, Lead Programme Manager at the Central Informatics Bureau (CIB), Ms. Bhoomita Budhai, Category Manager for a healthcare and wellbeing solutions provider; Dr. Chanseet Goolab, first nominated female General Surgeon on the island, and Dr. Janaki Sonoo, Director of the Health Laboratory Services, speak about the opportunities and difficulties that women are embracing at multiple levels in the health sector. The insights gained can inform long-term planning, policymaking, and programing in support of women's empowerment in health and technological advancement.

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Message from ...

Dr. Janaki Sonoo

Director of the
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Date: 27 July 2022



It is a great honor and privilege for me to be associated with the publication of this Newsletter with the focus on “Women in Healthcare Innovation and Technologies”

Women have always played a pivotal role in the health sector, from tending to the health of the family to the health of the nation. In modern times, women have increasingly emerged from their stereotyped shell and are engaging in the formal health sector and penetrating once male dominated specialties. As per the World Health Organization, the global health sector has an impressive female workforce of 70%. In Mauritius, the women workforce outnumbers men in the health sector. However, as per the report “*Delivered by women, led by men: A gender and equity analysis of the global health and social workforce*”, co-produced by WHO and Women in Global Health, despite being a strong representative workforce in healthcare, women are mostly concentrated in the lower rung of the healthcare delivery, with low paid and at times unpaid roles, compounded by their experience of gender bias and harassment.

The COVID-19 pandemic, one of the greatest public health challenges of this century, has put great pressures on healthcare systems globally. However, it has also provided tremendous opportunities to innovate healthcare delivery, such as telemedicine and the digitalization of health services. The implementation of the COVID Laboratory Information Management System (LIMS) in our laboratory service,

and the introduction of home therapy for hemophilia patients, are some of the examples of the innovative ways which were adopted to meet healthcare demands during the pandemic in Mauritius. The struggle is not only about diverse healthcare responses in terms of cutting-edge technological tools and innovations, but also to revisit the realm of “Digital Health” in the policy and public discourse.

March 8th is celebrated as International Women’s Day around the globe and the theme for 2022 was very aptly chosen as “Gender Equality today for a sustainable Tomorrow”. It called on the world to collectively “Break the Bias,” with one of the missions being “to celebrate digital advancement and champion the women forging innovation through technology”. From a gendered perspective, the inclusion of women across the healthcare modernization process is fundamental to address emerging gender gaps in technology and longstanding gender disparities in healthcare. Gender transformative policies are needed to eliminate inequities and gender-based discrimination, and support access to professional development and leadership roles. This will help to achieve a sustainable impact on the advancement of women in healthcare and allied sectors, in leadership positions and not only in frontline service delivery.

Dr. Janaki Sonoo

Director of the Health Laboratory Services

Women in Healthcare Innovation and Technology

In 1996, the UN General Assembly acknowledged that access to medical products and medical technologies are basic human rights as a significant component of two rights contained in the International Covenant on Economic, Social and Cultural Rights (ICESCR) - ‘the right to health’ (Article 12) and ‘the right to share in scientific advancement and its benefits’ (Article 15)¹.

In 1998, the World Health Organization (WHO) recognized the potential impact of digital technologies and innovation on health; and in 2005, it acknowledged the concept of eHealth². eHealth leverages technologies and telecommunications encompassing computers, the Internet and mobile devices to offer cost-effective and revolutionary electronic solutions to health and health-related systems around the world³. Though certain drawbacks have already been identified such as data authentication, ethical challenges and data security⁴, the advantages of eHealth are evident. From telehealth; the provision of online medical reports; mobile applications for scheduling visits; the use of artificial intelligence (AI) to produce more accurate diagnoses and treatment plans⁵, eHealth is poised to structurally transform healthcare delivery significantly and permanently.

With this momentum, the Government of Mauritius has developed strategies to equip and boost the national healthcare system with modern technologies, as articulated in the Health Sector Strategic Plan 2020-2024⁶. In 2018-19, MUR 100 million was allocated to the eHealth project, which is geared towards improving continuity of care; ensuring secure and confidential data and records management; enhancing diagnosis of diseases; mitigating patient re-visits; avoiding medical errors, and more⁷.

Women account for 70% of the global health workforce⁸. In Mauritius, slightly more women than men study medicine (Statistics, 2020)⁹. In 2020, the number of registered doctors with the Medical Council of Mauritius was 3,450¹⁰. However, sex-disaggregated data on the distribution of healthcare workforce by gender is unavailable. It is thus difficult to map out the representation of women across medical sectors and in decision-making roles. The WHO and Women in Global Health report “*Delivered by women, led by men: A gender and equity analysis of the global health and social workforce*”, noted that women tend to be concentrated in low status, low paid and, at times, unpaid roles, in healthcare, compounded by their experiences of gender bias and harassment¹¹.

Since the onset of the COVID-19 pandemic, global healthcare systems have continued to face unprecedented pressures and unparalleled demands for innovative health technologies¹². Increasingly, many patients, not at ease with on-site medical visits, prefer to receive e-consultations and care via eHealth tech systems. There are new devices which are programmed to remotely monitor patients through 24/7 diabetes care services and online sugar-level measurement devices¹³. From a gendered perspective, mainstreaming the inclusion of women across the healthcare modernization process is fundamental. It is key to efficiently address the nexus between emerging gender gaps in technology and longstanding gender disparities in healthcare, and to boost female representation in leadership roles in the health and allied sectors, and not only in frontline service delivery.

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There is a whole world of opportunities out there for women and girls to seize. I encourage girls to prioritize education and to be firm and ambitious. Work hard for what you want to become and achieve!

Enthusiasm for large-scale transformative tech projects

Ms. Anita Beeharry has over 30 years of work experience in the ICT field. Employed by the Ministry of Information Technology, Communication and Innovation as Lead Programme Manager at the Central Informatics Bureau (CIB), she shares her real enthusiasm for transformative national ICT projects. Ms. Beeharry has worked on several pioneering ventures, such as the National biometric ID card which was introduced in 2013. Assigned as ICT Project Manager at the Ministry of Health and Wellness during the last six years, she is now involved in the National eHealth project, an ambitious enterprise which aims to bring about innovative e-solutions to improve health care services in Mauritius.

“Joining the Ministry of Health and Wellness in 2017, I have had the opportunity to engage with diverse working groups encompassing doctors and nurses, radiologists, pharmacists, and legal representatives - who are still contributing to the conceptualization of the colossal eHealth project.”

One of the primary goals of the eHealth project is to create a digital patient database for every single Mauritian citizen. Introduced about a decade ago, the National ID card will play a pivotal role in building and updating the database. Patients will flow from A&E or Unsorted Outpatient Department to other wards and departments, or even across hospitals which conventionally operate in silos, with their personal data and medical history made accessible to those legally entitled health care providers with a scan of their ID. Medical staff will also be able to update patients’ information, such as new diagnoses, on the database.

E-prescription of medicines in lieu of a paper-form will also become a reality. However, we need to work towards making this procedure fit into our legal data protection and authentication framework. For instance, certain restricted medicines, will still require authentication through hand signature of doctors.”

According to Ms. Beeharry, a major hindrance to the development of the eHealth project in Mauritius is the lack of international exposure, that is, visualization and hands-on learning from countries that have already developed and integrated eHealth structures within their own healthcare systems.

“To fill the knowledge gap, we are partnering with the United Nations Development Programme to help consolidate our understanding of the eHealth ecosystem and plan for development and rollout with support from international experts. The aim is to curate innovative ideas and consider existing eHealth models which we can use as examples and tailor to our national context and demands.”

Notwithstanding the prevalence of gender barriers in ICT, Ms. Beeharry shared that her career path has been a blessing. She claims she has had the chance to progress up the ladder of success in ICT without any significant gendered obstacles. Ms. Beeharry credits the support of her family, inclusive of the men, who have guided and supported her along her career journey.

“In hindsight, after completing my high school studies, I was at a crossroads. I had to choose between nutrition studies and Computer Science. It was my father who persuaded me to opt for IT studies, which he averred was the future with a plethora of opportunities to offer. Today, looking back, it was the most judicious advice I could have received back then.

I also recall being the only woman in the batch of 7 recruited employees to integrate the ICT ministry. My university years mirrored the same gender gap pattern - we were only 5 girls out of 30 students reading for a degree in Computer Science. Back in those days, the underrepresentation of women in ICT was unequivocally flagrant, but I do observe an improvement nowadays with more and more women entering the ICT sector - precisely in software development which is my field of expertise.”

A leadership role in Health and Technologies

Ms. Bhoomita Budhai has been working as Category Manager for a leading health care and wellbeing solutions provider in Mauritius since 2018. Holding a bachelor's degree in Biochemical Engineering and 12 years of professional experience in healthcare technology, the 34-year-old manager is proud to work in an industry that is constantly evolving to provide technologically advanced solutions in the health sector and ultimately to patients.

"At first, I was undecided about which area of engineering to study. After extensive research, I came across the field of biomedical engineering, which was one of the priority areas that the Mauritian Government wanted to promote and develop. My interest further increased as I read about the industry's prospects, not only career-wise, but particularly in terms of providing workflow automation solutions; cutting-edge tools; computer-aided imaging to medics, and optimized AI solutions to patients."

In general, engineering is a very male-centric field, and that includes Biomedical Engineering. My department is male-dominated; all of our technicians are men. While my colleagues are very supportive and respectful of me, at the beginning it was rather tough.

I recall that, during the first meetings I had in my career, external customers would overtly hold eye contact with my male technicians even though I was the project leader. It was frustrating as I felt excluded from discussions. My male colleagues had to tactfully bring me into the conversations. Fortunately, with time, things changed. Today, I feel that the gender gaps are being bridged with more women entering the field."

Ms. Budhai shared that her role is to look after her company's portfolio for medical consumables. Working with almost every hospital and private clinic

in Mauritius, the conglomerate seeks to bring state-of-the-art health technologies, and renowned and trusted brands to the island. Describing the nature of her job as "riveting", she is constantly learning about new and transformative health technologies.

"We try to keep pace with the latest technologies even if there are multifaceted obstacles such as cost. Additionally, when we decide to bring a new technology over, we cannot just sell it to our customers. Training is required both on our side and our potential customers' side. Once our technicians gain preliminary training from suppliers and become certified, they can be deployed to train our customers, mostly medical staff, on how to use the new technology. We also attend to installations, after sale service and repairs."

One of the latest technologies that we are importing to Mauritius is the Hysteroscopic Tissue Removal (HTR) system. Equipped with a hand piece hysteroscope, cutting blades, fluid management system, power control unit, footswitch, and software, the HTR technology implies a minimally invasive procedure to treat a wide array of gynecological pathologies such as polyps and uterine myomas. The HTR system was developed to overcome the limitations of traditional hysteroscopic procedures and mitigate risks and complications associated with them. This is great news for female patients and gynecologists who have been requesting this technology."

Due to the increasing number of patients suffering from cardiovascular diseases in Mauritius, Ms. Budhai's department places emphasis on the marketing of cardiovascular devices such as pacemakers and bioprosthetic heart valves. Currently, she is following up on two major technologies which will be soon implemented, including the Transcatheter Aortic Valve Implantation (TAVI) - a medical procedure to treat damaged aortic valves.

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Women's aptitude and expertise are needed across the spectrum of medical branches, not only in cliché GPs and nursing. The future for women in science, health and technology is bright!





An inspiring career in surgery and technologies

In 2017, Dr. Chanseet Goolab was nominated as General Surgeon in Mauritius – and proudly as the first nominated female General Surgeon on the island. To date, she has practiced surgery in five major hospitals across the island. Her surgeries, including emergency admissions, mostly involve the lower limbs and abdominal region.

“I have always nurtured a fervent interest and curiosity in the human anatomy as I find the internal mechanism that keeps a living body alive very intriguing! After studying sciences in High School, I went on to study medicine abroad. Thereafter, I obtained a scholarship to further my studies in surgery in China.”

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Women have and continue to demonstrate their inherent capacities and innate resilience to cope with life challenges. The practice of surgery may be hard, but women can absolutely do it! Surgery is another marvelous and powerful way for women to show what they can do!

I returned to Mauritius in 2012 and was nominated General Surgeon in 2017 – which means that I could independently plan and lead major operations. Prior to that, as a registered Medical Officer, I would assist in operation theatres, and at times I would also conduct minor surgeries, amongst other tasks - all that helped me to deepen my knowledge and acquire substantial experience prior to my nomination.

Surgery is historically a male-dominated space in the health sector, even at a global scale. Considering the unique demands, long hours, and the potential impacts on my family life, some acquaintances tried to dissuade me from pursuing a career in surgery. However, I cast aside these gender biases and followed my passion! My family has and continues to support me on this career path.”

Dr. Goolab shared that the practice of surgery does require a lot of patience; personal sacrifice; availability at short notice during on-call hours due to emergencies; and physical strength - as one may be expected to stand on their feet and operate sometimes for as long as 5 hours! On the other hand, the fact that her job allows her to combine humanity and science, and above all save lives, is highly rewarding.

“The emergence of innovative technologies in the scope of surgery is inevitable and indispensable! For example, laparoscopic surgery, which entails a minimally invasive surgical procedure with the use

of camera, light source, video monitor and long surgical instruments, marked the beginning of the information age revolution in surgery. Due to the quick recovery time associated with this method, patients can go home 24 hours post-surgery!

Another example is the use of ultrasound technology in surgery, which is more commonly used in Mauritius. This procedure involves the intervention of radiologists who help surgeons to locate abnormal lesions or cell growths in the human body through echo guidance. Once the pathology is identified; under localized anesthesia, I can then insert a needle (called a gun) and conduct a biopsy, which is the removal of a sample of cells for diagnosis. Thanks to this technique, the patient does not have to undergo a major surgery under general anesthesia.”

According to Dr. Goolab, the recruitment and engagement of more female surgeons can help to reverse the longstanding underrepresentation of women in surgery, including in decision-making positions. This could also bring pivotal diversity and inclusion to the field of surgery in terms of skills, innovative ideas, technological abilities, and more.

“Women must be encouraged, enabled and inspired to fulfil their surgical career ambitions. As a female surgeon, I have been acknowledged for my hard and meticulous work, and for the way I interact with my patients.”



Experiencing innovative technologies in Pathology

Dr. Janaki Sonoo, of Indian origin, began her career in medicine in Mauritius in 1991. A doctor and specialist in Pathology, she is today the acting Director of the Health Laboratory Services, which falls under the aegis of the Ministry of Health and Wellness.

“My father used to be in the Indian army. I wanted to follow his footsteps by entering the army too, but there were only so many entry points for women - either through medicine, nursing or something along the medical line. Medical schools in India were very competitive. It was with unwavering determination that I secured a place. However, rather than joining the army, I found myself embarking on a career journey in Mauritius – a flourishing one!”

The field of medicine is very dynamic and ever-evolving! Throughout the years, I have witnessed tremendous innovations across the broad spectrum of medical branches, including laboratories. Previously, everything



used to be transcribed and processed manually, but thankfully, innovative technologies and automation have modernized the way we operate, for instance, how we store patients' personal data.

While heading the National Blood Transfusion Service (NBTS), I recall the difficulties of entering patients' data manually, which sometimes led to human errors. In 2007, the NBTS system was finally computerized. Today, all patients requiring one-off to regular blood transfusion are registered in a digital database. It is also the case for every single donor - 90% of the blood bank's stock comes from voluntary donors. Within minutes, we can easily track and match blood stock for patients in need, as per the specific blood group requirements. This saves us precious and vital time!”

Dr. Sonoo affirms that, beyond the human and economic implications of COVID-19, the pandemic has accelerated digital transformation and technologies. In close collaboration with the United Nations Development Programme Office in Mauritius and the University of Washington, the Department is implementing the Laboratory Information Management System (LIMS) project, with funding from the Governments of Mauritius and Japan, and the UNDP core funding.

“The laboratory is a pivotal branch in the medical field. Even the World Health Organization postulates that 75% of medical decisions, especially during a pandemic outbreak, derive from laboratory analysis and results. As soon as COVID-19 struck, we had to gear up our laboratories in Mauritius accordingly. We also had to set up a laboratory at the airport to screen all incoming passengers. We went from doing 5 to 10 PCR tests per day to an exponential 5000 tests per day!”

The LIMS project using an Open ELIS web portal - which was initially conceived to manage the HIV crisis in Africa - was swiftly adapted to the COVID-19 reality. Prior to the LIMS, we would enter all laboratory data manually, which was very time consuming.

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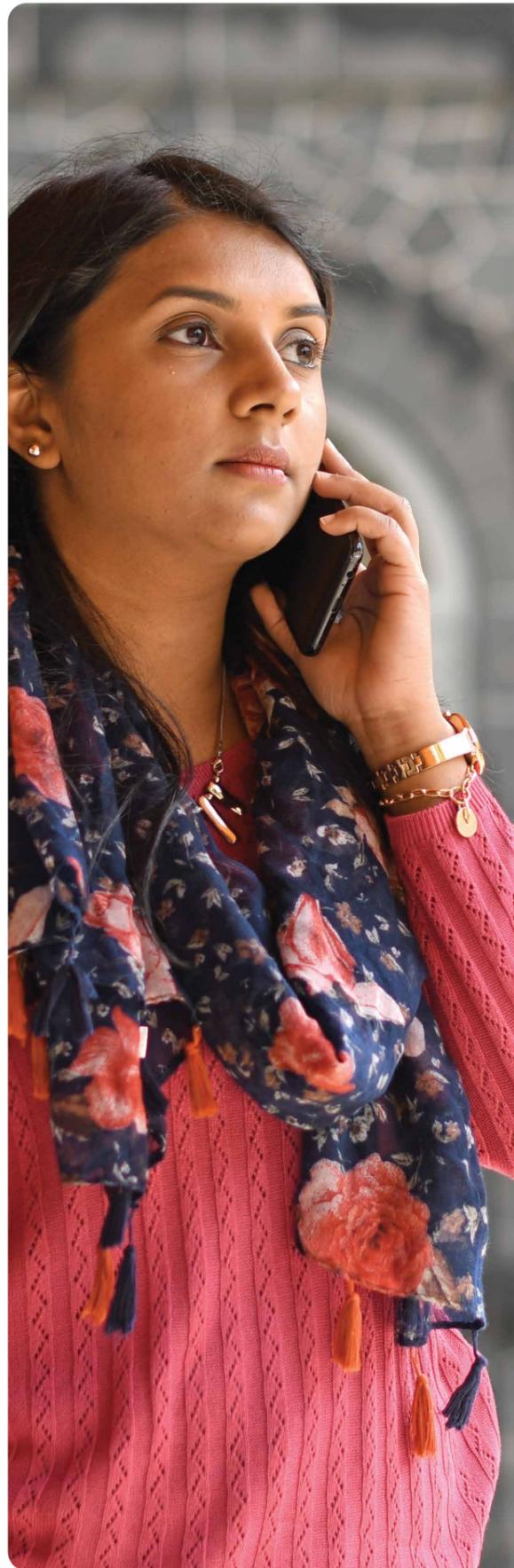
When I began my career in Pathology, it was predominantly male-dominated. Over the years, more women have joined the field and are excelling! Gender stereotypes, norms and values must be addressed at an early stage. childhood, so that kids (both girls and boys) can grow up to make life choices free from gender biases.

With LIMS in place, we were able to digitally manage all patients' and passengers' data and COVID-19 status. The current success of the LIMS has given new impetus to upscale all laboratory systems around the island, and to expedite the National eHealth project.

Besides LIMS, the COVID-19 pandemic has also catalyzed the implementation of home therapy. For example, during the sanitary lockdowns, patients suffering from hemophilia were unable to attend the hospital for their routine injections. With the approval of the Ministry of Health, patients were able to self-inject at home. Home therapy has proven to be highly efficient, and now we must leverage digital technologies to heighten the monitoring of off-site patients.”

Aware of gender biases and gender division of labour that prevail in the medical world, Dr. Sonoo believes that women should not restrain themselves to the 'once feminized' branches of medicine such as Pediatrics.



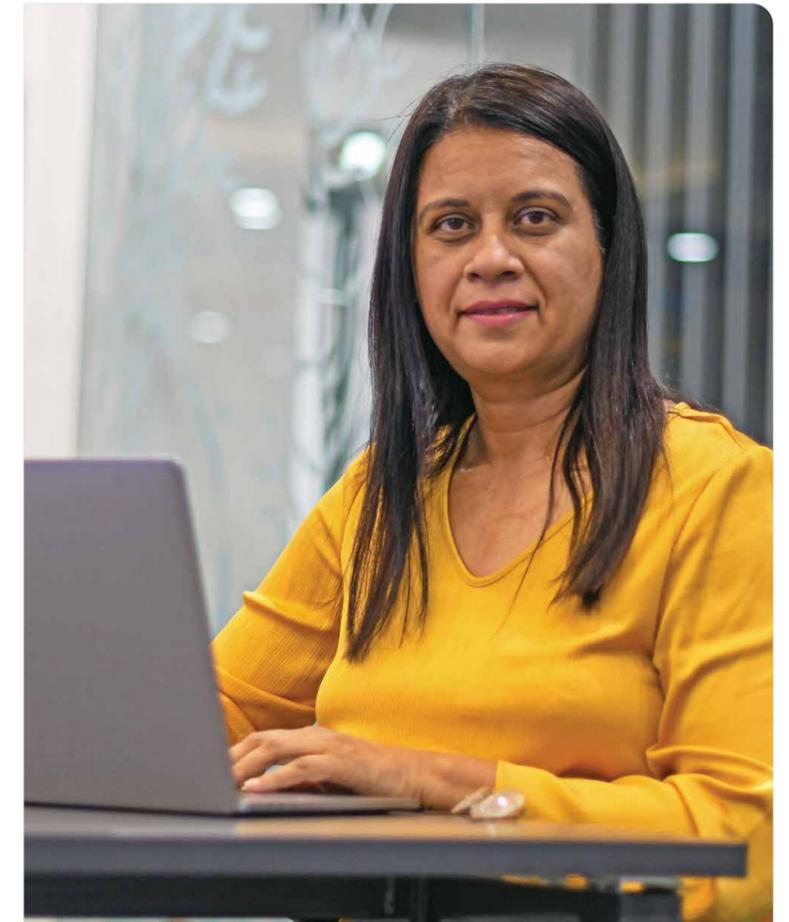


Findings

This newsletter brings to light different ways in which women in Mauritius are entering and excelling in historically male-dominated branches of medicine such as General Surgery and Pathology. The women interviewed remain leaders in their respective roles in the realm of innovation and disruptive digital transformation in health. For instance, Ms. Beeharry is one of the main managers spearheading the National eHealth project; while Ms. Budhai is contributing to ensuring that state-of-the-art technologies are made available in Mauritius to impact and elevate health services for the benefit of both patients and the medical staff.

These women's stories also demonstrate their ability to be solution-oriented such as Dr. Sonoo who is contributing to the implementation of the LIMS project which helped to manage the medical aspects of the COVID-19 pandemic. Dr. Sonoo's contribution in the implementation of the LIMS project also assisted the management of the pandemic from a pathological angle. The informants strongly believe that women have a critical role to play in the advancement of the health sector and health technologies, and that women must be enabled and supported in this venture.

Targeted gender-sensitive and inclusive responses at policy level can address barriers and empower women in the health sector for immediate and long-term benefits in a technologically driven health sector. Key areas identified for policy intervention encompass (i) addressing gender gaps in health sector, especially in career pathways; (ii) devising more incentives to encourage girls to study medicine free from gender biases and influence; (iii) policy reinforcement to address sexism, gender-based harassment and career progression barriers in the health sector; (v) training women in the health sector to use new technologies so that they do not lag behind in the digitalization of medical processes and services; and (vi) promoting women in decision-making roles in the healthcare sector.





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