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DR. FADI EL KARAK
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Medical Oncology

DR. FADI EL KARAK
MOLECULAR PROFILE
OF NON-SQUAMOUS NON-SMALL CELL LUNG CANCER:
A RETROSPECTIVE MULTI CENTRIC STUDY IN LEBANON

Dr. Joelle Antoun Kourie
Ophthalmic Consultant

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For my Father ...

It's been one year and few months since you are gone. According to time in real life that's one year and five months but to me it feels like an eternity. I still wake up in the morning thinking this is a nightmare and you're not really gone. At night I look at you bed and check you are still sleeping there, I look at every corner in our house where you left me there alone at the cold. You know on daily bases I remember those thoughts we used to discuss at the balcony while we watch the sunset together, your small garden at the balcony where you used to sit every morning to have coffee is not anymore the same it was, it is surviving but still sad I did my best to let it live again but even plants have their own way to speak up and we can feel it, sadly they said their words with their lovely green color and deliveered their message to me. At night, I look every day to the sky and make a wish on the brightest star I see and I believe it is you.

When I was young you told me we grieve for ourselves because the deceased are in a better place. As a man, I know that is true, but I still miss you terribly. For nine years I watched you endure horrific pain. I prayed and pleaded with God to heal you. Towards the end of your life, I was so angry that my prayers were not answered. You were not supposed to die unable to eat; it seemed like such a cruel death sentence for such a good man.

When you died my grief became so overwhelming and suffocating that on numerous occasions, I was convinced that I too was dying. My heart was so heavy and the pain was unbearable. You played a major role in my life and now you were gone. For my entire existence we spoke every single day, even when I was away in college or abroad That's 45 years of saying "I love you", 45 years of being a Daddy's boy, 45 years of feeling safe, 45 years pure, unconditional love. And now just like that you were gone.

Watching Mom mourn you is unbearable, there are times I'm certain I can hear the sounds of her heart breaking. I watched Mom selflessly care for you throughout your marriage, but with extra care the past 9 years. So much that it was not uncommon for you to shout to the doctors that you were alive because of Mom. As your health began to fail, Mom was the one breathing life into you each day. I will never forget how your eyes would light up with joy when Mom entered the room. You and Mom showed me what true, unconditional love looks like. Hearing the gut-wrenching sounds of Mom mourn you is a heartbreaking, agonizing experience.

Till we meet again,let your soul freely fly high and rest in heaven.

Sincerely
Marwan Nammour





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Dr. Fadi EL Karak

Dr. El Karak is a medical doctor specialized in Hematology and Medical Oncology from Saint-Joseph University of Beirut from which he holds a Masters in Science. He is also a holder of a Masters in Clinical Development of Products of Health from the (CDU) Claude BERNARD University in France.

Dr. El Karak has performed a fellowship at Léon BERARD Cancer Center in Lyon-FRANCE and at Massachusetts General Hospital, Harvard Medical School in Boston. USA. He has authored and co-authored over 100 publications in leading international journals.

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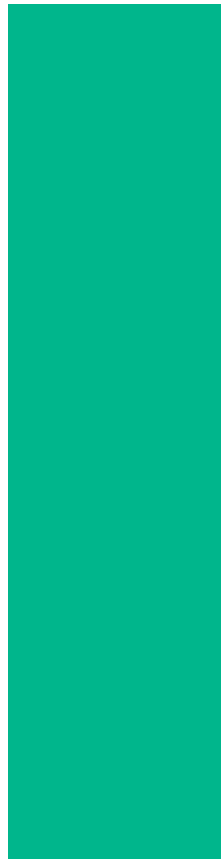
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CONTENT

MOLECULAR PROFILE OF NON-SQUAMOUS NON-SMALL CELL LUNG CANCER: A RETROSPECTIVE MULTICENTRIC STUDY IN LEBANON

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ABSTRACT

Introduction: Testing for driver mutations in non-squamous non-small cell lung cancer (NSCLC) before treatment is recommended. Next Generation sequencing (NGS) allows simultaneous testing of multiple genes. NGS results for NS-NSCLC in Lebanon have not yet been reported.

Materials and Methods: This retrospective multicenter study describes the molecular characteristics of NS-NSCLC in Lebanon. For patients with negative EGFR and ALK tests, NGS results have been collected from treating physicians.

Result: NGS reports of 40 patients were collected revealing that 60% had adenocarcinomas, and 80% had metastatic cancer at diagnosis. The most frequent actionable mutations were in the RAS family accounting for 55%. TP53, STK11, KEAP1, and CDKN2A/B were the most common non-actionable mutations. The median OS was 13 months. Patients with actionable mutation had a median OS of 12.5 months, while those with non-actionable had a median OS of 20 months.

Conclusion: This study is the first of a kind to describe the molecular characteristics of NS-NSCLC in Lebanon. NGS seems to be a beneficial test in case of negative EGFR and ALK test.

Keywords: NGS; Driver Genes; Targeted Therapies; Lebanon.

Introduction

Definition and Epidemiology

Lung cancer is defined as a malignant tumor developing within the bronchi or in the lung's parenchyma(1). With over two million new cases worldwide in 2020, lung cancer ranks second in terms of incidence. It also accounts for 18 % of all cancer deaths, and therefore is the leading cause of cancer deaths(2).

Histology

Lung cancer is divided into two separate families. SCLC is an aggressive form of lung cancer from neuroendocrine origin(3) whereas NSCLC, the most common subtype accounting for 85 % of all cases and is divided into squamous cell carcinoma and non-squamous (NS) including adenocarcinoma and large cell carcinoma [4]. SCC, among all NSCLCs, has the highest association to tobacco smoking [5]. Despite screening efforts, and its effect on decreasing diagnosis at advanced stages, in most cases, NSCLC is discovered in metastatic setting. [6] When it comes to advanced NSCLC, treatments are not curative. Therefore, palliative systemic therapy or radiation therapy are the standard of care [7]. Since the goal of targeted therapies is to give the patients the drugs that match their specific profile, the standard of care [7]. Since

the goal of targeted therapies is to give the patients the drugs that match their specific profile, the standard of care in NS-NSCLC today is to test for mutations that are predictive of care in NS-NSCLC today is to test for mutations that are predictive essential part of the management of NSCLC.

Towards Targeted Therapies

Driver genes are genes that, when mutated, lead to cell proliferation. Progress in the field of genetics as well as the sequencing of tumors own DNA, allowed the profiling of tumors DNA. A 2004 study tumors own DNA, allowed the profiling of tumors DNA. A 2004 study a tyrosine kinase inhibitor [9]. This discovery led to a paradigm shift in the management of lung cancer. A similar role of ALK, ROS1 and BRAF V600E mutations has been later on established [10]. Therefore, these mutations should be tested at diagnosis for all patients with advanced NSCLC (category 1). [10] There are other mutations of oncogenic drivers that can be targeted, thus, when EGFR, ALK and ROS1 tests are negative, there is a uniform consensus to screen for RET fusions, HER2 mutations, MET amplification and MET exon 14 mutation [10].

Molecular Biology in NS-NSCLC

Mutations occurring in cancers can be classified according to their clinical implications. Actionable biomarkers are mutations that are predictive of response to treatment and therefore of better outcomes. On the other hand, prognostic biomarkers are related to tumor's intrinsic aggressivity and therefore predict survival independently of treatments [11]. Furthermore, agnostic biomarkers predict response to a certain targeted therapy independently of the site [12]. Finally, emerging biomarkers are predictive of response according to several studies, however, are not fully established [11]. While there are many known mutations in NS-NSCLC, only few of them have clinical significance. At the diagnosis of advanced NS-NSCLC, and before any treatment decision, it is important to assess at least the status of EGFR, KRAS ALK, BRAF, METex14, NTRK1/2/3, RET and ROS [11,13]. There is also a uniform

consensus that PD-L1 status should be tested upfront. [11] However, patients with both actionable mutations and positive PD-L1 status should be treated first with targeted therapies rather than ICI. [11].

Testing for Mutations

There are two different approaches to the for mutatuins un NS-NSCLC. The first is sequential testing ,where there are different validated biomolecular technique that can be used while the other is to upfront test for all known mutatuins through NGS . A companion diagnostic test is a test that is FDA approved and recommendeds to identify buimarkers and mutatuins that targeted bu a specific frug[14]. In the past fre years , the FDA has approved several companion tests for TKIs in the treatment of NSCLC .

Sequential Testing

Testing for a mutation is a time and resource consuming process. In NS-NSCLC, the presence of certain mutations excludes the possibility of the presence of another one and vice versa.

Such mutations are called mutually exclusive mutations. Indeed, KRAS, EGFR, ALK, ERBB2, and BRAF oncogenes are found in more than 50 % of lung adenocarcinomas and up to 90 % of lung adenocarcinomas in Asian never smokers. However, they are generally mutually exclusive, with the presence of one of them excluding the presence of the others [15]. Sequential testing follows a logical pattern, where looking for the mutations goes from the most to the least frequent mutation in a population, until one of the actionable oncogenes is found. The first tested mutations are EGFR and KRAS using targeted assays.

NGS

NGS, is a technique of massive parallel sequencing that allows to sequence the entire genome or specific regions and genes. Therefore, it allows finding mutations in different chromosomes and genes simultaneously. In the specific frame of NSCLC, the use of NGS allows not only to find mutations of interest, but also Microsatellite instability and Tumor Mutational Burden. In comparison with sequential testing, NGS allows a higher rate of detection of alterations, and is more

cost-effective. It has also been linked to better outcomes in terms of quality of life and overall survival [16]. Turnaround time (TAT) is also a major determining factor when comparing sequential testing to upfront NGS. When it comes to sequential testing, either different tests are done simultaneously in the prospective of reducing TAT, or they are done separately to cut costs, however the result should be available within two weeks. In terms of TAT efficacy, upfront NGS is superior to sequential testing, in which 32.5 % of patients exceed the maximum TAT [17]. When it comes to cost, first line parallel sequencing is on average 158 euros cheaper (17%) than sequential testing, on the exception of 45.5 % of patients who have EGFR or KRAS aberrations, discovered only after first line targeted assays [17]. Although NGS allows obtaining supplementary 0.17 LY and 0.12 QALY, treatments costs are 8 357 euros higher [17]. Another advantage of parallel sequencing is the need for less tissue material, which is also usually scarce in lung cancers and the higher sensitivity for liquid material.

Insights from the Lebanese Experience

Lebanon is an East-Mediterranean country with an estimated population of 6.8 millions [18]. In addition to classical risk factors such as cigarette smoking and pollution, waterpipe consumption is particularly prevalent, especially in youngsters [19]. Another epidemiological particularity is the widespread of small electrical generators as a surrogate for centrally produced power, with studies showing that people living nearby where at a higher risk for lung cancer [20]. According to the National Cancer Registry, Lung Cancer was in 2016, the second most diagnosed cancer (2nd in males and 3rd in females), with over 1 100 new cases [21]. The average ASR respectively for males and females was 32.1 and 14.3 per 100 000 [22]. From an histological point of view, adenocarcinoma is the most common histology (48%), followed by squamous cell carcinoma (23 %) and small cell carcinoma (13.3%) [23]. It is notable that among MENA countries Lebanon has the highest rate of lung cancer in woman and second highest in men [22]. A paper

by Temraz et al. on lung cancer trends in Lebanon reports that cases were 2.5 more frequent in males than in females and that adenocarcinoma is the dominant histological type in comparison to SCC, thus following a westernized trend [24]. A systematic review from the Middle East and North Africa region including 1215 patients, reported EGFR mutations in 257 of them (21.2%), with the exon 19 deletion being the most common.

It has also reported a higher rate of EGFR mutation in women and non-smokers. [25] The first Lebanese study on driver mutations stanon-smokers. [25] The first Lebanese study on driver mutations status in NS-NSCLC, was reported by Fakhruddin et al. on 106 patients with lung adenocarcinoma, with a median age of 62 years old and a 2:1 male to female ratio. In 37.7 % of the cases a KRAS mutation was retrieved, mostly single mutations in the exception of 5 double mutations, with 85 % having a G>T substitution in codon 12 of exon 2. 6 cases had the substitution in codon 13 as well as a case of A>G substitution in codon 61 of exon 3. Men and smokers were at a higher risk for this mutation. The same study retrieved EGFR mutations in 9 cases (8.5 %), and no patient had concomitant EGFR and KRAS mutations. 8 out of 9 of the mutations were exon 19 deletions with one case of L858R substitution in exon 21. It is notable that EGFR mutations were significantly correlated with female sex ($p=0.005$), nonsmokers ($p=0.003$) and differentiated tumors ($p<0.001$) [26]. A single institutional study by Naderi et al from 2015, on 204 NSCLC patients with a mean age of 65.2 years, of which 90 % had NS NSCLC, shows an 11.9 % mutation rate of EGFR [27]. 25 EGFR mutations were detected in total, since One patient had 2 mutations: an exon 19 deletion and an exon 20 T790M mutation. The frequency of the mutations is as follows : 48% (12) exon 19 deletions, 40% (10) exon 21 L858R mutation, 4% (1) exon 18 G719X mutation, 4% (1) exon 20 insertion and 4% (1) exon 20 T790M mutation [27].

Two thirds of the patients in the study that have EGFR mutations were females and non-smokers [27]. Another 2017 Lebanese

study from a different center, by Tfaily et al, included 205 patients, most of them Lebanese, that were tested for EGFR mutations. 32 out of the 205 tested had EGFR mutations. The most detected mutations were an exon 19 deletion in 78.1 % and a exon 21L858R mutation in 21.9 %²⁸. Although the mutation was more frequent in nonsmokers and females, the difference was not statistically significant²⁸. ALK status was also studied in 157 patients, out of which only 3 had a translocation (1.9 %)²⁸. Moreover, in a paper by Fakhrudin et al. on 106 cases, both K-RAS and EGFR statuses were studied. 37.7% had a KRAS mutations, of which the majority were male and smokers. On the other side, only 8.5 % had an EGFR mutation.

Materials and Methods

The aim of this paper is to describe the molecular characteristics of NS-NSCLC in Lebanon, when no EGFR, ALK or ROS1 mutations, are found and to correlate it with survival. This is a retrospective, multicenter study conducted in Lebanon between January and December 2019. The routine practice during that time in the involved institutions was to perform a reflex testing of EGFR mutation and ALK rearrangement for all metastatic NS-NSCLC. Participating centers were arranged for all metastatic NS-NSCLC. Participating centers were After the exclusion of SCC and SCLC patients, reports information such as the test date, Tumor Mutational Burden, Microsatellite Status, as well as actionable and non-actionable mutations were collected. We then performed a chart review to collect data such as Information on the date of diagnosis as well as metastatic sites at diagnosis, agents used in each line of systemic treatment as well as current status or date of death or lost to follow-up.

Results

The total number of collected NGS reports was 45, from 4 different institutions. After removing 3 patients with SCC and 2 with SCLC, descriptive statistics were conducted on a total of 40 patients. The median age was 65 years old (35-83) and the male to female sex ratio was of 2.4. 60 % had adenocarcinomas and the rest

had NOS tumors. 32 patients (80%) had metastatic at diagnosis. 14 had bone metastases, 13 brain and 9 liver metastases. Concerning NGS findings, the microsatellite status was stable in 73 % of the patients and could not be determined in the 27 % others. Tumor Mutational Burden was low in 38%, intermediate in 33%, high in 4% and unavailable in 20%. NGS retrieved 23 actionable mutations in 55 % of the patients. Figure 1 represents the prevalence of each of these mutations. The most frequent mutations were those in the RAS family, accounting for 55%. Concerning non-actionable mutations, a total of 143 mutations were found, with a median of 4 mutations per patient, Figure 2 is a representation of the number of non-actionable mutations per patient. The most frequent were respectively TP53, STK11, KEAP and CDKN2A/B in 50 %, 28 %, 23% and 20 % of patients. The average number of lines of treatment was 2. In the first line setting, 25 (63 %) patients received ICI, alone or in combination with chemotherapy, while 13 (33 %) received chemotherapy alone and 2 (5%) received TKIs. Only 17 patients benefited from second line therapies, 8 (47%) received chemotherapy alone, 6 (35 %) received ICIs and 3 (18 %) received TKIs. Concerning the third line, 7 (47%) patients received ICIs, 5 (33%) chemotherapy alone and 3 (20 %) TKIs. Finally, only six patients received fourth line treatment, divided into three equal groups for chemotherapy alone, ICIs and TKIs. The median OS was found to be 13 months. When divided into two groups, the one with actionable mutations (29 patients) had a median OS of 12.5 months, while the one with nonactionable mutations only (11 patients) had a median OS of 20 months.

Discussion

This is the first multicenter study reporting the characteristics and outcome of patients with NS-NSCLC undergoing molecular testing by NGS technique in Lebanon. It is also, to our knowledge, the first study reporting on the molecular characteristics of NS-NSCLC after the exclusion of EGFR exon 19 and 20, ALK and ROS1 rearranged tumors. During 2019 and at diagnosis, metastatic NS-NSCLC

patients in Lebanon benefitted from a reflex testing sponsored by pharmaceutical companies targeted-essays test for EGFR followed if negative by FISH for ALK and ROS1 rearrangements. It is estimated that EGFR mutations occur in 8.5 to 15.6 % of patients in Lebanese series [26-29] and one series reports ALK rearrangements in 1.9 % of patients [29]. ROS1 rearrangement prevalence has not been reported so far. With this approach, at least 10 - 15% of patients with NSCLC in Lebanon will not need NGS. The purpose of this study was to evaluate the percentage of patients harboring actionable mutations when we exclude the common EGFR, ALK and ROS1 classical mutations usually done as a routine practice in countries with limited resources like Lebanon then to evaluate the capacity to receive potential targeted therapies and to correlate it with survival. Since 2019, Lebanon entered the worst economic crisis of its history, which alongside COVID-19 pandemic, negatively affected the capacity of patients to benefit from cutting edge technologies, such as NGS.

Also, cancer therapies, aside from basic chemotherapy, have been missing repetitively, therefore testing for mutation has been some-times considered obsolete. The median age of patients (65 years), is concordant to other Lebanese studies on NS-NSCLC [26,27]. The male to female sex ratio of 2.4 is also similar to other reported findings from Lebanon [24,26]. Only one study in Lebanon have reported the rates of KRAS mutations in NSCLC patients, which was 37.7 %²⁶ but in this series all type of KRAS point mutations were included. In our analysis, we found that KRAS G12C accounted for 42 % of the actionable mutations and were found in 25 % of the patients. HER2 mutations, are usually retrieved in up to 4 % of NSCLC, exclusively in adenocarcinomas [30]. In this analysis, it was amplified in two patients and mutated in four, accounting for 10 % of all patients. Met Skip mutations and amplification was found in 8 % of all patients, which is also in a higher percentage than the 1 to 5 % in NSCLC reported in the literature [31]. percentage than the 1 to 5 % in NSCLC reported in the

literature [31]. ready excluded around 15% of patients with the common EGFR, ALK and ROS1 mutations. TP53 mutations are usually associated to worse outcomes of radiation and chemotherapy [32]. They are more frequent in SCC than in lung adenocarcinomas and usually found in around 45 % of the patients with adenocarcinomas [33]. In line with the literature, 20 (50%) patients in our series had TP53 mutations. Of note 2 patients were found to have EGFR mutations which were not detected by the PCR technique. This finding was described in other series documenting the false negative rate of EGFR PCR technique, with a sensitivity estimated to be around 70 % depending on the technique [34]. When actionable mutations are found, it is usually recommended that TKIs should be used in first line setting [11]. However, many TKIs have not received FDA approval until recently, with more than 20 TKIs for solid tumors being approved since 2018 [35]. The majority of patients with actionable mutations in our series did not receive the appropriate targeted therapy because of no availability of these drugs via compassionate use programs, non-approval in Lebanon or the non- capacity of buying the drugs from abroad because of the economic crisis. These obstacles make questionable the value of NGS in countries with limited resources.

Moreover, the fact that NGS is not done upfront, and is usually run at a later stage, delays the discovery of actionable mutations, and therefore delays the use of TKI until later stages. Indeed, the gap between the uses of TKIs compared to a combination including ICIs or chemotherapy alone, is wider at first line and becomes smaller until getting even with the others in fourth line. One striking finding in our report is the trend toward better survival of patients with nonactionable mutations in comparison to those with actionable mutations.-

However no solid conclusion can be drawn because of the retrospective form of our study, the non-comparability between the groups and other confounding factors not taken into consideration such as age, metastatic site, and performance status. Since

actionable mutations were found in 23 patients (55%) after the exclusion of EGFR, ALK and ROS1, upfront NGS is a promising approach, and should be considered in Lebanese patients in order to improve outcomes and reduce waiting times before getting the optimal treatment. However, new recommendations should take into consideration the financial hardship for the patients, as well as the limited availability of newly approved drugs in developing countries. Other limitations of the study are that it did not take into account the smoking status, the limited sample size, as well as the descriptive design of the analysis.

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M42's AMANA HEALTHCARE Receives Diamond Award for safety in digital transformation by Arab Hospitals Federation



- *Diamond Award reflects AmanaHealthcare's ongoing commitment to patient safety through innovative technology, building on its previous recognition as a Silver Champion in 2023*
- *Amana Healthcare's recognition is in line with M42's vision of operating at the forefront of medical advancement to provide the highest level of safe and precise care to patients*



Amana Healthcare, an M42 company, is the Middle East's leading provider of specialized long-term care, rehabilitation and home healthcare services and is the region's pioneer in integrated continuum-of-care services. Based in the United Arab Emirates, Amana Healthcare serves patients from a wide catchment area including the Middle East, Africa and South Asia - who need complex specialized post-acute care. Amana Healthcare's hospitals are accredited by the U.S. Commission on Accreditation of Rehabilitation Facilities.

Abu Dhabi, UAE; December 5, 2024: Amana Healthcare, part of the M42 group, has been recognized for the third consecutive year by the Arab Hospitals Federation, receiving the prestigious Diamond Award for 'Safety in Digital Transformation' for its commitment to enhancing patient safety through digital advancements.

Building on the success of last year's Silver Star award, Amana Healthcare has since shown exemplary leadership in digital safety initiatives, made improvements in safety metrics, and led advances in technology applications, data security and

patient privacy. The award was presented to Dr. Jason Gray, Chief Executive Officer of Amana Healthcare, at a ceremony held during the Arab Hospitals Federation's Silver Jubilee celebration, under the esteemed patronage of His Excellency Sheikh Nahyan bin Mubarak Al Nahyan, Cabinet Member and Minister of Tolerance and Coexistence.

Amana Healthcare's digital safety initiatives have seen a reduction in antibiotic use in the form of isolates targeting carbapenem-resistant organism such as E.coli, from 31 percent to 19 percent in 2024. Another significant improvement

has been the decline of the total antibiotic consumption from 130 days per 1,000 patient days to 90 days.

A key driver of this success was the development of a digitally enabled Antimicrobial Stewardship Program featuring 'Power BI,' a business intelligence dashboard that supports real-time surveillance of antimicrobial resistance — when germs like bacteria can defeat the drugs designed to kill them. This program enhances patient safety by empowering clinicians to make timely, data-driven decisions, resulting in a three fold increase in clinician consultation. The dashboard offers clinicians visual, evidence-based tools for more precise antimicrobial prescribing.

Commenting on the award, Dr. Gray said: "At Amana Healthcare, we focus on delivering patient-centric care enabled by advanced technologies and innovative solutions, including artificial intelligence (AI), to provide precise and preventive care. Following last year's win, we were inspired to continue advancing our digital innovations and strengthening the fight against antimicrobial resistance, which is a critical issue in healthcare.

This achievement highlights our commitment to leveraging the latest technology to prioritize patient safety and improve clinical outcomes.

As the region's leading provider of specialized long-term care, rehabilitation and home healthcare services, we are committed to continuously enhancing our digital solutions to benefit our patients."

Amana Healthcare plans to expand its Antimicrobial Stewardship Program with improvements to the 'Power BI' dashboard, such as:

- Predictive analytics for early intervention in infection control.
- Ongoing training and updates will equip caregivers to fully utilize these tools,
- Prioritizing patient safety and operational efficiency.

The innovative program has the potential for nationwide implementation. Patient data remains secure under Federal Law and international security standards,

ensuring compliance and safety throughout the digital transformation

To book an appointment:

Amana Healthcare / visit <https://amanahealthcare.com> or call 800 262 6242.

For more information on the awards, visit <https://ahfonline.net>.



About M42

M42 is a first-of-its-kind, global tech-enabled health powerhouse committed to the sustainable future of health. The Abu Dhabi-headquartered company is transforming lives through innovative solutions that are solving the world's most critical health and diagnostic challenges.

By harnessing unique medical and data-centric technologies, including genomics and AI, M42 is delivering the highest level of personalized, precise, and preventative health solutions to impactfully disrupt the global health landscape.

M42 has over 20,000 employees and more than 450 facilities in 26 countries. Established in 2022, following the coming together of G42 Healthcare and Mubadala Health, M42 combines leading health technologies with state-of-the-art healthcare facilities to deliver world-class health solutions, services and care.

The M42 group includes Diaverum, Cleveland Clinic Abu Dhabi, Imperial College London Diabetes Centre and Moorfields Eye Hospital Abu Dhabi, among others.

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*Prescription market data, Dec. 2022 - S01K without cyclosporine

†In a chronic dry eye patient usage study, participants from a variety of socioeconomic backgrounds answered questions about iVIZIA. There were 203 chronic dry eye patients, ranging from ages 28-80, who used their current eye drops before switching to iVIZIA for 30 days.‡

‡To limit blurriness when using contact lenses, remove contacts, apply drops, then insert contacts.

Reference: 1. Data on file

Arab Health event and congress contributed US\$269.7 million to Dubai's economy during 2024 edition



- Tourism and hospitality key beneficiaries of Arab Health as accommodation spend during the 2024 event totalled more than US\$56.2 million
- Year-on-year domestic and international visitor growth to create an economic impact of over US\$1.2 billion between 2026 – 2028
- The 50th edition of Arab Health will run from 27 – 30 January 2025 at the Dubai World Trade Centre

Dubai, United Arab Emirates, 12 December 2024: Arab Health, the Middle East's largest and most influential healthcare event and congress, has underscored its importance to the Dubai economy, contributing US\$269.7 million in 2024. This economic impact boosted key sectors, including tourism, hospitality, logistics and healthcare investments.

According to the data revealed by Informa, Arab Health last year welcomed over 58,000 visitors and hosted more than 3,600 exhibitors from 180 countries during the 2024 edition, generating in excess of US\$56.2 million in accommodation spend, with an average room night stay of 5.7 nights for all participants. The total F&B spend equated to more than US\$24.5 million.

The economic impact projections for 2026 – 2028 are over US\$1.2 billion, with accommodation totals expected to be in excess of US\$341.6 million during the forecast period.

This growth is expected to be spurred by annual visitor and exhibitor increases from domestic and international markets. The forthcoming 2025 edition of Arab Health, which will take place at the Dubai World Trade Centre from 27 – 30 January, is expected to draw more than 3,800 exhibitors and over 60,000 visitors.

Ross Williams, Group Event Director, Informa Markets, commented: “Arab Health has been a catalyst for Dubai’s economic and healthcare transformation for the past 50 years. The 2025 edition will celebrate this legacy and demonstrate how the event continues to drive growth in tourism, hospitality, and healthcare investment. By bringing the world to Dubai, we are fostering collaborations that will shape the future of healthcare globally.

“This 50-year celebration reflects Arab Health’s rich history and a leap forward, exemplifying Dubai’s strategic position as a global healthcare hub. By 2028, Arab Health is poised to drive further international collaborations, investments, and innovations that will redefine health care for decades to come.”

Since its inception in 1975, Arab Health has grown from a regional event with 40 exhibitors into a global healthcare platform. In the last five decades, the event has showcased advancements that have shaped modern healthcare, from digital imaging technologies in the 1980s to today’s AI-powered diagnostics, underscoring its pivotal role in advancing the industry.

The 50th edition will host several transformative events, including the Future Health Summit, exploring cutting-edge healthcare trends and technologies. Arab Health will also debut the World of Wellness and Healthcare ESG Forum, emphasising sustainability, wellness, and green innovations, aligning with Dubai’s

and the UAE’s vision for a sustainable, technology-driven future.

Furthermore, the Astronaut Al Worden Endeavour Scholarship, a ground breaking collaboration supporting aspiring scientists and engineers, will highlight the UAE’s commitment to fostering global healthcare and scientific talent.

Elsewhere, medical professionals attending Arab Health 2025 will have access to nine Continuing Medical Education(CME) accredited conferences taking place at Conrad Dubai, including radiology, obstetrics and gynaecology, quality management, surgery, emergency medicine, infection control, public health, decontamination and sterilisation, and healthcare leadership. Orthopaedics will be a non-CME invite-only conference.

In addition, three non-CME Healthcare Business Forums will take place: Empow- Her: Women in Healthcare, Digital Health and AI, and Investment.

This year will also see the Al Mustaqbal Hall utilised as a new exhibitor zone featuring a range of first-time exhibitors, and the inaugural edition of the Eco-sphere, a dynamic health and well-being area delivered through the World of Wellness conference and Healthcare ESG Forum. The area will also be home to exhibitors in the healthcare and general services, wellness and prevention, and orthopaedics and physiotherapy product sectors.

Arab Health 2025 will be supported by various government entities, including the UAE Ministry of Health and Prevention, the Government of Dubai, the Dubai Health Authority, the Department of Health, and the Dubai Healthcare City Authority.

For more information or to register for the event, please visit:

Website: www.arabhealthonline.com

Facebook: <https://www.facebook.com/ArabHealth/>

X: @Arab_Health #ArabHealth

Linkedin: Arab Health Forum

Instagram: @arabhealthonline

M42's Danat Al Emarat Hospital for Women & Children celebrates Eid Al Etihad with the arrival of a joyful newborn



Dec 2, 2024, 06:44

The first baby born on Eid Al Etihad, Swetha Sarguru, a baby girl, brought immense joy and pride to the family and staff at Danat Al Emarat Hospital for Women & Children.

Abu Dhabi, United Arab Emirates (UAE); December 02, 2024: Danat Al Emarat Hospital for Women & Children, part of the M42 group, joined the nation in celebrating the joy and pride of Eid Al Etihad, the new official name for UAE National Day, by welcoming a newborn girl into the world on this historic and cherished occasion.

The radiant Swetha, of the Sarguru family from India, was born at 4:17 AM, weighing a healthy 3.08 kg. The little bundle of joy not only filled the hearts of the proud parents but also added to the celebratory atmosphere across the hospital. Reflecting on this special moment, Swetha's father, Jayaram Subburaj shared: "Welcoming our daughter on such a momentous day fills us with indescribable gratitude and pride.

The entire Danat Al Emarat Hospital for Women & Children team has been a shining example of care and compassion, and we are forever thankful to have shared this day with them."

Dr. Summia Zaher, Chief Executive Officer of Danat Al Emarat Hospital for Women & Children, extended her heartfelt congratulations to the families, stating: "We are overjoyed to celebrate this special birth on Eid Al Etihad, a day that symbolizes unity, progress and pride in a nation that has amazed the world with its achievements.

This precious arrival reminds us of the boundless possibilities of tomorrow, made even more special as they are born amidst the spirit of celebration and hope.

She continued: "The unwavering dedication of our incredible team of obstetricians, pediatricians, neonatologists, midwives and nurses ensures that every baby's first moments are met with the highest level of care and compassion. It is a privilege to share these milestones with families, especially on a day as significant as UAE National Day."

Adding to the festivities, Danat Al Emarat Hospital for Women & Children distributed

flowers, chocolates and heartfelt wishes to patients, families, and children throughout the hospital, spreading the spirit of unity and joy into every corner of its corridors.

As the UAE celebrates its remarkable journey of progress and togetherness, Danat Al Emarat Hospital for Women & Children, continues to honor its role in bringing new life into the world, ensuring every birth is a celebration of health, happiness and hope.



مستشفى دانة الإمارات
Danat Al Emarat Hospital
WOMEN & CHILDREN النساء والأطفال

Danat Al Emarat, part of the M42 group, is a world-class specialty women and children's hospital located in Abu Dhabi, United Arab Emirates. The five-story hospital, accredited as a clinical research center by the Department of Health – Abu Dhabi, covers an area of 58,000 square meters, with 225 beds.

The hospital offers a comprehensive range of inpatient and outpatient medical and surgical services including Neonatology & Pediatrics, Surgery, Obstetrics & Gynecology, Internal Medicine, Women's Diagnostics & Breast Imaging, and others, all of which are equipped with the latest technology and led by highly qualified clinicians to provide unmatched patient and family-centered care.

Our medical team is hand-picked from the international and local market specializing in numerous sub-specialties. Our 130+ consultants and primary care physicians work closely together to ensure the entire needs of women and children are addressed in a single convenient location and to the highest standards.

Arab Health to address MEA's US\$3.29 billion wearable medical device market



Research has revealed the MEA wearable medical device market will reach US\$3.29 billion by 2033, a CAGR of 18.1% between 2024 and 2033

Arab Health will introduce the new Eco-Sphere Zone and World of Wellness Conference to explore cutting-edge technologies in personalised wellness and holistic health

The 50th edition of Arab Health will run from 27 – 30 January 2025 at the Dubai World Trade Centre

Dubai, United Arab Emirates, 25 November 2024: Arab Health, the Middle East's largest and most important healthcare event and congress, will explore the growth of the region's wellness wearables market, as figures have unveiled the market in the Middle East and Africa (MEA) is expected

to top US\$3.29 billion by 2033.

The data by SPER Market Research has highlighted a Compound Annual Growth Rate (CAGR) of 18.1% between 2024 and 2033 and includes technologies such as smartwatches, fitness trackers, wearable ECG monitors, insulin pumps and

continuous glucose monitoring devices, all designed to collect information about vital signs, physical activity, sleep patterns and blood glucose levels, among others.

Globally, the market is expected to reach upwards of US\$151 billion by 2029, according to BCC Research.

A range of factors are contributing to the growth, including the increasing prevalence of chronic lifestyle diseases and the ageing global population.

Increased investment in cost-effective solutions for preventive care, early detection, and disease management are being supported by wearable devices, reducing the need for hospitalisation and promoting better health outcomes.

In addition, the vast technological advancements in wearable devices, from sensor technology to connectivity, have resulted in better real-time alerts and seamless smartphone integration, increasing the popularity amongst potential users.

Ross Williams, Senior Exhibition Director, Informa Markets, said: "The wearable medical device market became prominent during the COVID-19 pandemic where gadgets could monitor vital signs and symptoms remotely, reducing, and in some instances, negating the need for in-person consultations. Since then, we have seen the technology become more innovative and more reliable to the extent that healthcare professionals will soon be able to create an accurate treatment plan exactly when required, based on the data collected from patient wearables.

"Arab Health 2025 will deep dive into the next-gen wellness wearables and the latest innovations and new technologies in the market, and the impact these are having on patient care and the improvement of daily lifestyles."

The wearables market will be discussed as part of Arab Health's new Eco-Sphere zone, where the two-day World of Wellness conference will spotlight revolutionary developments in longevity, mental health solutions, nutrition and wellness, biohacking, and sustainable wellness practices, led by Alyaa Al Mulla, the Founder of Longevity, a newly established public policy think tank in the UAE. A

series of presentations from forward-thinking innovators will address the power of wearable devices, telemedicine and other wellness tools.

A range of speakers have already been confirmed, including Sergey Young, longevity investor and bestselling book author, who will provide the opening keynote: Wellness in 2050 – A vision for the future, said: "We are on the brink of a transformation in human health and longevity. With groundbreaking advancements in science & technology, we're building a future where living longer and healthier lives is within everyone's reach – a vision that redefines what it means to be human by 2050." Other speakers include Dr. Federico von Son, Longevity Medicine and Genome entrepreneur, Joanne Sadier, Senior Health Specialist, Dubai Health Authority, Glen Hagemann, Director Wellness and Personalised Medicine, Mediclinic Middle East, and Cedric Betis, Member, Dubai Future Council on Health and Well-being, Wellness advisor, Dubai Future Foundation, Founder and CEO, Becan Wellness Consultancies.

The Zone will also feature the Healthcare ESG Forum, designed to provide healthcare executives with the knowledge to develop strategies around the challenges and opportunities of environmental, social, and governance (ESG) in healthcare. Several experts will share their insights on how they are shaping the future of sustainable healthcare.

Celebrating its 50th edition when it returns to the Dubai World Trade Centre (DWTC) from 27 - 30 January 2025, Arab Health will take place under the theme 'Where the world of healthcare meets' attracting an international audience with several new show features showcasing the groundbreaking innovations shaping the future of healthcare. The 2025 edition is expected to draw more than 3,800 exhibitors and more than 60,000 visitors due to increased floor space. Arab Health 2025 will be supported by various government entities, including the UAE Ministry of Health and Prevention, the Government of Dubai, the Dubai Health Authority, the Department of Health, and the Dubai Healthcare City Authority.

M42's Danat Al Emarat Hospital for Women and Children Advances its culture of safety through introduction of international safety program



The hospital's neonatal intensive care unit department to incorporate the Comprehensive Unit-Based Safety Program (CUSP), originally developed by Johns Hopkins Hospital in Maryland, USA

CUSP will continue to ensure a culture of safety, respect and teamwork to protect and nurture newborns and their families

Abu Dhabi, UAE – December 24, 2024 – The neonatal intensive care unit (NICU) at Danat Al Emarat Hospital for Women & Children, part of the M42 group, has implemented the Comprehensive Unit-Based Safety Program (CUSP), an internationally-recognized safety program. Originally developed by the globally renowned Johns Hopkins Hospital, CUSP focuses on enhancing safety across all aspects of operations including patient care through improved team communication and shared learnings. This further cements the hospital's status as a leader in neonatal care in the UAE. CUSP addresses risks such as infections and medication errors, involving multidisciplinary teams, executive involvement and regular safety reviews to drive continuous improvement. Educational and teambuilding sessions further promote respect, collaboration and ongoing development within the NICU team.

Dr. Summia Zaher, Chief Executive Officer at Danat Al Emarat Hospital for Women & Children, said: "As a leader in neonatal care, Danat Al Emarat Hospital for Women & Children is aware of how challenging it can be for families with babies in a neonatal intensive care unit.

The recent implementation of the internationally recognized Comprehensive Unit-Based Safety Program (CUSP) is part of the broader culture of safety that we foster across our patient services.

This initiative reflects our ongoing commitment to excellence in neonatal healthcare and highlights our dedication to improving outcomes for all our patients."

Dr. Vineet Gupta, Consultant Neonatologist at Danat Al Emarat Hospital for Women & Children, added: "Our neonatal intensive care unit is among the largest and most advanced in Abu Dhabi, caring for over 100 premature babies each month.

The introduction of the Comprehensive Unit-Based Safety Program (CUSP) underscores our commitment to delivering the highest level of care to babies and their families."

Another CUSP initiative focuses on Antibiotic Stewardship, analyzing infection risks and antibiotic sensitivity patterns in

newborns across the UAE using data from the past seven years. The findings will help the hospital administer antibiotics more carefully, addressing newborns' vulnerability to infections and minimizing the risks associated with antibiotic resistance.

Another aligned effort is the Neonatal Departmental Clinical Governance Pathway, a risk matrix designed to assess incidents reports in the NICU.

This objective scoring system identifies potential harm to newborns and highlights high-risk areas to focus on. Introduced in early October, it represents an important step toward improving safety and care quality for infants.

To learn more about Danat Al Emarat Hospital for Women & Children or to book an appointment, please call 800 96626 or visit <https://danatalemarat.ae>.

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النساء والأطفال WOMEN & CHILDREN

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Ministry of Health Saudi Arabia and Boehringer Ingelheim Strengthen Collaboration to Further Improve Stroke Management Across the Kingdom



The collaboration builds on the existing partnership between the Ministry of Health Saudi Arabia and Boehringer Ingelheim in stroke care

The renewed partnership aims to further expand stroke care through Seha Virtual Hospital and upskill medical professionals to improve service quality in stroke care

The initiative aligns with Saudi Arabia's Vision 2030 to improve healthcare services and well-being for citizens and residents

Riyadh, Kingdom of Saudi Arabia – 25 November 2024: Boehringer Ingelheim has signed a Memorandum of Understanding (MoU) with the Ministry of Health (MOH) in the Kingdom of Saudi Arabia (KSA) to expand its Angels Initiative telestroke services through Seha Virtual Hospital in efforts to enhance local stroke management and improve health outcomes for stroke patients in the Kingdom. The MoU was signed on 21 October 2024 during the Global Health Exhibition in 28 Arab Health World

services through Seha Virtual Hospital in efforts to enhance local stroke management and improve health outcomes for stroke patients in the Kingdom. The MoU was signed on 21 October 2024 during the Global Health Exhibition in



Riyadh, an annual event that brings together healthcare professionals, innovators, and policymakers to highlight advancements in healthcare technology, medical devices, pharmaceuticals, and health services.

The collaboration between the two parties aims to address the prevalence of stroke in the Kingdom of Saudi Arabia which stands at 43.8 per 100,000, largely influenced by low public awareness and knowledge.

The two parties entered an agreement in 2022 to incorporate telestroke services in 11 hospitals across the Kingdom through the Boehringer Ingelheim’s Angels Initiative which aims to help hospitals around the world become ‘stroke-ready’ so that patients can be treated as quickly and effectively as possible.

In line with Saudi Arabia’s Vision 2030, the partnership will involve the expansion of Boehringer Ingelheim’s telestroke services through the Seha Virtual Hospital, further enhancing the public’s accessibility to stroke care.

The partnership will also focus on key areas such as educational and training programs for healthcare professionals, public awareness initiatives to educate the community on stroke risk factors and early warning signs, and the creation of a comprehensive Stroke Registry in KSA to ensure data-driven improvements in patient care.

The MoU was signed by Khaled bin Nayef Al-Obaiwi, Operations Manager of Secondary and Tertiary Command Center at Ministry of Health Saudi Arabia, and Abdallah Hamed, General Manager & Head of Human Pharma Saudi Arabia, Gulf and East Africa (SAGEA) at Boehringer Ingelheim, during an official ceremony attended by Dr. Sattam Al-Otaibi, Assistant General Director of Hospitals at the Ministry of Health, and Dr. Mohammed Aljohani, Consultant in Neurology & Vascular Neurology (Stroke) and Neuro-interventions Specialist, and President of Saudi Stroke Society.

Khaled bin Nayef Al-Obaiwi, Operations




Manager of Secondary and Tertiary Command Center at Ministry of Health Saudi Arabia, emphasized the importance of this collaboration: "Stroke incidences and related deaths have risen across KSA in relation to multiple factors, including the aging population, and low public awareness of stroke risk factors, causes, and symptoms. Timely intervention is of utmost importance for stroke patients as it can minimize the long-term effects of a stroke and save patients' lives. We are very pleased to build on our collaboration with Boehringer Ingelheim to leverage their world-class telestroke services further through our Seha Virtual Hospital, ensure more patients have timely access to stroke support across the Kingdom."

Abdallah Hamed, General Manager and Head of Human Pharma Saudi Arabia, Gulf, and East Africa (SAGEA) at Boehringer Ingelheim, added, "We are very pleased to expand our services through Seha Virtual Hospital to provide KSA patients with 24/7 access to leading healthcare specialists. Our growing partnership with the ministry of Health in Saudi Arabia is a testament

to our ongoing commitment to working alongside the public sector to create patient-oriented healthcare solutions that improve patient outcomes in support of the Kingdom's Vision 2030."

The collaboration highlights the importance of partnerships between the public and private sectors in advancing healthcare and ensuring better patient outcomes. Under the agreement, the parties aim to work together to improve public awareness to identify evidence-based approaches to reduce the complications of stroke. Boehringer Ingelheim's Angels Initiative seeks to reduce the burden of stroke for patients by working with hospitals to build an innovative network of stroke-ready hospitals worldwide to reduce treatment delays and provide patients with optimal standards of acute stroke care. The initiative works with doctors, nurses and ambulance crews to build acute stroke networks, optimize treatment, diagnosis, and implement best practices enabling multidisciplinary stroke teams to act faster to minimize the burden of stroke on patients' lives.



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CLEVELAND CLINIC ABU DHABI NAMED TOP RESEARCH HOSPITAL IN UAE FOR SECOND YEAR RUNNING



*NATIONAL CENTER FOR HEALTH RESEARCH (NCHR) AT
MINISTRY OF HEALTH AND PREVENTION HONORS CLEVELAND
CLINIC ABU DHABI AS TOP RESEARCH HOSPITAL IN THE UAE FOR
THE 2ND YEAR IN A ROW*

*IN 2023, CLEVELAND CLINIC ABU DHABI INITIATED 60 NEW
RESEARCH STUDIES, BRINGING THE TOTAL TO 212 ACTIVE STUDIES*

*THE HOSPITAL HOLDS THE DISTINCTION OF BEING THE FIRST
HOSPITAL IN THE UAE TO RECEIVE THE ACCREDITATION FROM THE
ACCREDITATION COUNCIL FOR CONTINUING MEDICAL EDUCATION
(ACCME®)*

Abu Dhabi, United Arab Emirates. December 28, 2024: For the second consecutive year, Cleveland Clinic Abu Dhabi, part of the M42 group, has been recognized as the top health research hospital in the UAE by the National Center for Health Research at the Ministry of Health and Prevention (MoHAP). This prestigious recognition not only validates the hospital's ground-breaking clinical innovations but also underscores its leadership in advancing medical research and education in the region.

As a provider of residency and fellowship programs, undergraduate professional health training, and Continuing Medical Education (CME), CCAD is the first hospital in the UAE to be accredited by both the Accreditation Council for Graduate Medical Education International (ACGMEI) and the Accreditation Council for Continuing Medical Education (ACME). These efforts demonstrate its commitment to research excellence and education.

Dr. Sawsan Abdel-Razig, Chief Academic Officer at Cleveland Clinic Abu Dhabi, underscored the significance of this achievement, stating, «Being recognized as the top-rated research hospital in the UAE for the second consecutive year is a testament to the dedication and hard work of our entire team. At Cleveland Clinic Abu Dhabi, our multidisciplinary approach focuses on researching prevalent regional conditions to pioneer new treatments and elevate patient care standards. Research and education are at the core of our mission, enabling us to bring complex care closer to home.»

The NCHR plays a pivotal role at MOHAP in advancing MOHAP's health research strategies and promoting health research in the UAE. Since its inception, NCHR has been instrumental in recognizing research excellence in health and supporting healthcare facilities and academic institutions.

Through the Institutional Research Excellence Awards, NCHR has actively worked to significantly enhance health and biomedical research performance and productivity in the UAE.

Dr. Abdel-Razig continued, «Our commitment extends beyond clinical

excellence; we aim to advance medical knowledge and set new benchmarks in healthcare education. As we embark on another year, our unwavering dedication to research, education, and personalized care will continue to define our pursuit of delivering world-class healthcare in the UAE and beyond.»

In 2023, Cleveland Clinic Abu Dhabi initiated 60 new research studies bringing the total number of 212 active studies, including ongoing projects from previous years.

The hospital also launched an enhanced Research Student Program, offering comprehensive education in research



methodologies in 2023 and delivered the Fundamentals of Clinical Research course to trainees and faculty, for the third consecutive year.

Currently, the hospital is conducting three genome-based studies focused on liver health, breast health and obesity to further improve the health of the Emirati population.

These studies utilize DNA to expedite the development of new treatments and personalized healthcare options.

Cleveland Clinic Abu Dhabi continues to lead in medical advancements, highlighted by its contributions to stroke care, adult cardiac surgery, antimicrobial stewardship, and extracorporeal life support. The hospital's commitment to excellence has also earned it recognition as a Centre of Excellence (CoE) in multiple disciplines.

M42'S AMANA HEALTHCARE VILLAGE CELEBRATES TWO YEARS OF RESIDENTIAL CARE IN THE UAE



Facility caters to individuals with long-term healthcare needs and has provided care to hundreds of patients since opening in 2022

24/7 medical, nursing and therapy care available for a broad spectrum of clinical conditions

'Home-styled' community villas with premium medical facilities encourage independence

Abu Dhabi, United Arab Emirates, 26 November 2024: Amana Healthcare, part of the M42 group, is celebrating the second anniversary of Amana Healthcare Village in Abu Dhabi, a residential care facility that has welcomed hundreds of residents through its doors. This aligns with M42's commitment to improving patient care in the region and delivering quality patient care for all.

Located in Khalifa City, Amana Healthcare Village offers specialized, comprehensive

inpatient rehabilitation for those requiring care beyond what can be provided at home or in hospitals. With a capacity of 150 beds, it provides specialized care for patients with a broad spectrum of clinical needs, including 24/7 nursing care for the elderly and people of determination in 'home-styled' community villas.

Dr. Jason Gray, Chief Executive Officer of Amana Healthcare, said: "We are proud to celebrate this two-year milestone.

Amana Healthcare Village was conceived

to provide highly specialized care for individuals with complex medical needs in a 'home-styled' residential facility.

This intersection between hospital and home enables timely interventions, keeps patients healthier, improves healthcare outcomes and reduces hospital stays in a dignified and supportive environment." In line with the 'home-away-from-home' concept, Amana Healthcare Village provides a wide range of amenities addressing both physical and mental well-being, such as gym spaces, an outdoor therapy garden, a walking track, a sensory garden and prayer rooms. Each resident enjoys a private room with access to communal living areas, dining spaces, a therapy gym and a garden.

Residents also have access to communal and recreational spaces for social interactions and clinical areas for ongoing medical care.

It was for this reason that Salim Ali, aged 47 and battling a rare nerve disorder, sought out Amana Healthcare's support for the second time in January this year, marking his second admission after a previous relapse in 2019.

His condition severely weakened his limbs and impaired sensation, making daily tasks like dressing and bathing challenging without assistance. Salim explained: "From my first visit to Amana Healthcare, I felt they truly understood my needs. This time, I was hopeful they could help me regain some independence, and they did.

Their care and support helped me improve and get better, allowing me to regain my mobility."

The facility provided a comprehensive care and treatment while allowing him to enjoy day-to-day life in a homelike setting. He is grateful to the dedicated team that helped him reclaim aspects of his life that his condition had taken away.

Patients at Amana Healthcare Village receive the highest level of care tailored to diverse clinical needs, fostering interaction among peers in a secure setting. The facility provides round-the-clock physician coverage, specialized nursing teams, and access to multidisciplinary therapists and various quality-of-life programs, including a breakfast club, music therapy, outdoor

recreational activities and a library club to ensure a holistic approach to rehabilitation. The facility has distinct zones tailored to different types of care, with elderly patients receiving specialized services in the long-term category and those in rehabilitation benefiting from a dedicated comprehensive therapy program designed to address all aspects of their physical and mental well-being during their recovery, with stays of up to 90 days.

To learn more about Amana Healthcare Village, please visit: <https://amanahealthcare.com/patient-visitors/facilities/amana-healthcare-village/>

About Amana Healthcare

Amana Healthcare, part of the M42 group, is the Middle East's leading provider of specialized long-term care, rehabilitation and home healthcare services and is the region's pioneer in integrated continuum of-care services.

Based in the United Arab Emirates, Amana Healthcare serves patients from a wide catchment area including the Middle East, Africa and South Asia, who needs a complex specialized post-acute care.

Amana Healthcare's hospitals are accredited by the U.S. Commission on Accreditation of Rehabilitation Facilities.



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National Multiple Sclerosis Society Teams Up with M42 to Launch MS Helpline in the UAE



The “MS Helpline” facilitates access to resources and assists people living with multiple sclerosis to find the most suitable treatment facilities

The service is offered daily from 10:00 AM to 10:00 PM in its initial phase

The MS Helpline is supported by the Mubadala Foundation and operated by M42

Abu Dhabi, 10 December 2024 — The National Multiple Sclerosis Society (NMSS) has launched the “MS Helpline,” a new service designed to provide information on specialist Multiple Sclerosis (MS) healthcare practitioners across the UAE. The helpline also offers active listening support and facilitates mental health assessments. It also serves as a data collection tool to build the NMSS’s database and enhance existing programs. This initiative, supported by Mubadala

through the Mubadala Foundation and operated by M42, offers guidance, advice, and information while providing confidential and impartial assistance to the MS community.

The MS Helpline, accessible by dialling 800677, is the first phone-based support initiative for people living with MS in the UAE. It offers access to essential resources, referrals and guidance on clinics with MS specialists and is available from 10 am to 10 pm, seven days a week.



H.E. Ahmed Taleb Al Shamsi

H.E. Ahmed Taleb Al Shamsi, CEO of the Emirates Foundation and Vice Chair of the NMSS, said, “The UAE’s leadership prioritizes advancing healthcare for everyone and the NMSS is committed to improving access to necessary medical services for people living with MS. With the launch of the MS Helpline, people living with MS and their primary carers can now easily access information and resources to help them in managing MS.

“We are proud that this helpline is a regional first for dedicated MS support. We look forward to enhancing the service based on feedback from the MS community, as we move towards its next phase of implementation.

The NMSS values its collaboration with M42, and the support provided for the launch of the MS Helpline, which has been instrumental in availing this service,”

“We believe that partnerships and collaborative efforts among various stakeholders are crucial for tackling the challenges of MS and building a supportive ecosystem across the UAE.” Al Shamsi concluded.

Mansour Ahmed Al Ketbi, Deputy Chief Corporate and Human Capital Officer at Mubadala said, “The introduction of the MS helpline is an important service that we are proud to support.

Our collaboration with NMSS and Ma’an underscores our ongoing commitment to enhance social efforts that drive positive outcomes in our community. We aim to

enhance the quality of life for those affected by MS and ensure they have access to the necessary support and resources.”

Hasan Jasem Al Nowais, Managing Director and Group Chief Executive Officer at M42 and Chairman of Cleveland CLinic Abu Dhabi, added: “We are honored to team up with the National Multiple Sclerosis Society to provide an invaluable lifeline to the MS community in the UAE. People living with MS often feel isolated, so this helpline will address their needs and concerns, providing personalized guidance, assistance and support to help them live fulfilling lives and reduce the anxiety associated with the condition.

Operating outside of normal working hours, it will fill the gap currently experienced by people living with MS.”

The MS Helpline aligns with the National MS Coalition’s objectives, announced by the NMSS on World MS Day in May 2024. The coalition aims to implement a national MS agenda, foster cooperation and knowledge sharing, and establish a formal framework to achieve NMSS’s priorities and mandates and bettering the lives of people with MS.

Visit www.nationalmssociety.ae to discover the many ways you can contribute to the MS community in the UAE, or make a direct contribution through the Authority of Social Contribution - Ma’an platform.



Hasan Jasem Al Nowais

M42'S IROS AND HALIA THERAPEUTICS LAUNCH CLINICAL STUDY ON OBESITY TREATMENT IN THE UAE



- ***TRIAL UNDERSCORES IROS'S COMMITMENT TO DEVELOPING INNOVATIVE THERAPIES FOR UNMET MEDICAL NEEDS***
- ***THE STUDY'S SUCCESS COULD TRANSFORM OBESITY TREATMENT GLOBALLY***
- ***POSITIONS THE UAE AS A HUB FOR CUTTING-EDGE CLINICAL RESEARCH***

Abu Dhabi, UAE; 07 January 2025: To combat a global obesity epidemic that is placing significant strain on healthcare systems worldwide, IROS, an Abu Dhabi based contract research organization, part of the M42 group, a global health leader powered by artificial intelligence (AI) and technology, and Halia Therapeutics, a global clinical-stage pharmaceutical company based in Utah, U.S., are joining forces to conduct a clinical trial focused on obesity treatment.

This collaboration highlights Halia Therapeutics role as a global innovator, discovering and delivering new treatments to patients with a strong commitment to addressing global health challenges. According to the (WHO) World Health Organization, 2.5 billion adults in the world aged 18 years and older are overweight, including over 890 million adults who were living with obesity. About one-third of adults in the UAE are estimated to be obese and has one of the highest

occurrences of type 2 diabetes nearing almost 20 percent in some parts, more than double the global average IROS and Halia Therapeutics' clinical trial will explore a promising new therapy for obesity, specifically designed to address the chronic complex disease and further medical knowledge to provide a deeper understanding of the critical factors for effective obesity management in a global population.

The trial will involve 60 patients who have type 2 diabetes and who are classified as either obese or overweight. Conducted in two phases over approximately six months, the study will begin with a safety assessment and evaluation of how the body processes the treatment.

This will be followed by a phase where some participants receive the active treatment while others receive a placebo. The trial aims to explore innovative solutions for managing obesity.

Key objectives of the study include demonstrating the drug's efficacy in promoting weight loss with minimal side effects, assessing the safety of the drug for long-term use and its impact on the quality of life for patients.

Islam ElTantawy, General Manager of IROS, said: "IROS is committed to developing innovative therapies for unmet medical needs. Our partnership with Halia addresses a critical public health issue with the potential to improve the lives of millions struggling with obesity.



Islam ElTantawy, General Manager of IROS



Dr. David Bearss, CEO of Halia

This collaboration is a testament to IROS's capabilities in conducting studies of international standards and aligns with our plan for global expansion through partnerships with organizations such as Halia Therapeutics. It also demonstrates the UAE capability in conducting cutting edge clinical research and its position in fighting against one of the world's most pressing health challenges obesity."

Dr. David Bearss, CEO of Halia Therapeutic added: "Obesity is a significant health challenge affecting millions globally, and the Middle East is no exception. Through this study, we aim to contribute to global efforts to combat this epidemic by developing new and effective treatments. Our collaboration with IROS positions us to make significant strides to understand the chronic diseases treatment at their source.

"This study aligns with the region's focus on advancing healthcare through innovation. We are dedicated to bringing forward solutions that can lead to future research collaborations."

The success of this trial could enhance treatment options for obesity, both in the UAE and worldwide. Trial results will be closely monitored with updates provided as the study progresses. This collaboration further positions the UAE as an emerging hub for clinical research, leveraging cutting-edge capabilities to address the growing burden of chronic diseases in the region and globally.

PMFG 2024 Highlights Global Perspectives on Genomic Medicine



EXPERTS EXPLORE QATAR'S POTENTIAL AS A BIOMEDICAL INNOVATION HUB

4 December 2024, Doha, Qatar – Sidra Medicine, a member of Qatar Foundation, concluded the second day of its Precision Medicine and the Future of Genomics (PMFG 2024) Summit today.

PMFG 2024 continued to deliver an impactful discussions, uniting global experts to explore groundbreaking ideas in precision medicine and genomics. The summit featured dynamic sessions and a high-profile panel addressing the opportunities and challenges of building a robust biomedical innovation economy in Qatar.

A highlight of Day two, was the panel powered by Doha Debates, which explored the theme “Shaping the Future:

Exploring the Boundaries of Human Advancement.” Moderated by Al Jazeera’s Daren Abu Ghaida, the discussion tackled the ethical and philosophical implications of advancing genomics and biotechnology. Panelists included Jamie Metzl (Sci-Fi Novelist and Entrepreneur), Dr. Sarah Chan (The University of Edinburgh, UK), and Dr. Arash Rafii (Weill Cornell Medical-Qatar).

Dr. Sarah Chan, Center for Biomedicine, Self and Society, Usher Institute, The University of Edinburgh, UK, said: “Genomic medicine offers unparalleled opportunities to revolutionize healthcare, but achieving genomic justice requires addressing inequalities embedded in our systems.



By better understanding genome and its benefits for the long run, we can move toward personalized treatments tailored to individual needs, no matter how unique. This transformative shift must be supported by a fairer, more innovative approach to developing cures for the genomic era, ensuring that the benefits of these advancements are accessible to all.”The second panel session chaired by Dr. Iyab Tinubu-Karch, CEO of Sidra Medicine which convened thought leaders from academia, healthcare, and policymaking, -focused on positioning Qatar as global biomedical hub.

Panelists included Dr. Francis Yeoh (National University of Singapore), Dr. Mohamad Adel Ganem (Qatar Investment Authority), Dr. Slim Slam (World Innovation Summit of Health), Dr. Gordan Sanghera (Oxford Nanopore Technologies), and Dr. Peter-Owotoki (Vitalfluence.AI).

Dr. Francis Yeoh, Professorial Fellow and Chairman, Innovation & Entrepreneurship National University of Singapore, Advisor to Qatar Research, Development and Innovation Council, said: “To build successful biomedical eco system, there are six key components: strong government policies supporting innovation and business, access to cutting edge healthcare market a growing pool of skilled talent, available funding through venture capital and government grants, robust support service like legal aid, startups, and accelerators, and a culture that embraces innovation. Qatar has all of these essential elements in place – positioning it to become a leading biomedical hub.”

Dr. Mohamed Adel Ghanem, Head of Healthcare at Qatar Investment Authority,

said: “This event highlights Qatar’s progress and its ambition to lead in biomedical innovation. With advanced facilities like those at Sidra Medicine and access to comprehensive patient datasets, Qatar is well positioned to attract global partners and accelerate impactful solutions. Focusing on local health needs and creating a supportive regulatory environment gives the country a competitive edge to address global healthcare challenges.”

Dr. Slim Slama, CEO at the World Innovation Summit for Health, said: “Qatar is a small yet remarkably agile nation with a clear



vision for public health, technology, and investment. In a short time, it has made significant contributions to global health dialogue and innovation. It’s essential to ensure these discussions are inclusive and address the unique needs of regions like ours, where challenges range from infectious diseases to chronic conditions.”

PMFG 2024 is held under the patronage of the Human Genome Organization (HUGO) and the Global Alliance for Genomics and Health, with Qatar Precision Health Institute as a strategic partner, the Children’s Hospital of Philadelphia as a knowledge partner, Qatar National Bank as the Official Diamond Patronage and Sponsor, and Msheireb Museums as a community partner.

For the complete agenda and session details, visit:

<https://www.sidra.org/events/research/pmfg/2024/program/>

ZAYED MILITARY HOSPITAL SET TO BE NAMED SHEIKH SULTAN BIN ZAYED HOSPITAL TO MARK M42'S EXPANSION TO UAE'S NORTHERN REGIONS



- *Starting January 1, 2025, Sheikh Sultan bin Zayed Hospital will expand its services to people in the northern regions while continuing to serve military personnel and their families*
- *World-class clinical experts from M42's network of esteemed hospitals will deliver personalized expert care closer to home, saving time for those currently travelling further afield to access specialist healthcare services*
- *Under a first-of-its-kind military-civilian partnership earlier this year with the UAE's Ministry of Defense, the M42-managed hospital will also introduce specialized health programs to address the unique needs of the communities across the UAE's northern regions*

Abu Dhabi, United Arab Emirates; December 12, 2024: Zayed Military Hospital in Al Batayeh, Sharjah, managed and operated by M42, a global health leader powered by artificial intelligence (AI) and technology, in collaboration with the UAE's Ministry of Defense, is to be renamed Sheikh Sultan bin Zayed Hospital to mark the expansion of its services as of January 1, 2025. The hospital will continue to serve the UAE military and their families while providing access to world-class healthcare for communities in the northern regions. This development is a testament to M42's dedication to making specialized healthcare more accessible across the UAE, ensuring that advanced medical services are within reach for all citizens and residents.

World-class clinical experts from M42's

military personnel, their families and the wider community in the northern regions at the Sheikh Sultan bin Zayed Hospital. This cooperation clearly demonstrates our unwavering commitment to providing the highest standards of healthcare to the armed forces, while enhancing our role in the national health system by improving access to specialized medical care to a larger segment of the society."

M42's Managing Director and Group Chief Executive Officer, Hasan Jasem Al Nowais, added: "M42 aims to transform healthcare delivery by providing preventive, precise and predictive care to diverse community. Through this first-of-its-kind military civilian partnership with the UAE Ministry of Defense, we aim to make a tangible and positive impact on people's lives. Our dedication to health knows no borders,



مستشفى الشيخ سلطان بن زايد Sheikh Sultan bin Zayed Hospital Brought to you by M42

network of esteemed hospitals -including Imperial Colag London Dibates (ICLDC), Amana Healthcare, Mubadala Health Dubai and Health point will help delivering advanced treatments and specialmedical expertise. With a large multi specialty outpatient department, six operating rooms, an in-house laboratory and pharmacy, a radiology department, emergency care, and an intensive care unit, along with multiple procedure rooms, the state-of-the-art, 45,000 sqm 200-bed inpatient hospital is fully equipped to deliver the full continuum of care.

Family and internal medicine, diabetes management and endocrinology, cardiology, neurology, orthopedics, gastroenterology and urology are some of the services that will be available at the facility. Dr. Aysha Sultan Aldhaheri, Major General and Executive Director of the Military Health Executive Directorate in the UAE Ministry of Defense, said: "We are pleased with the first-of-its-kind military -civilian health partnership between the Ministry of Defense and M42 that will provide worldclass medical services to our

and we are proud to now serve the communities in the northern regions with world-class services and specialist expertise to meet their health needs. By fostering innovation and leveraging next-generation technology, M42 is committed to setting new benchmarks in patient care, improving accessibility and overall health outcomes to create a healthier, more equitable future for all." As part of M42's commitment to advance community health, Sheikh Sultan bin Zayed Hospital will introduce specialized health programs designed to address the unique needs of the wider community in the northern regions.

These initiatives will include targeted educational events, comprehensive health screenings, and personalized care solutions aimed at bridging the gap between healthcare access and overall well-being. By fostering a proactive approach to health, the hospital seeks to empower individuals with the knowledge and resources necessary to build a healthier, more resilient future for every member of the community.

NEONATAL RESUSCITATION: A GUIDE TO THE LATEST EQUIPMENT

Dräger

The LifeStart permits the addition of a resuscitation device, such as the Inspire **rPAP**, a non-invasive rescue device for the stabilization and resuscitation of infants. Resuscitation of newborn babies is a stressful experience for parents. Bedside resuscitation allows family members to stay together for mutual comfort, without having to be separated from their baby during this worrying procedure. LifeStart and inspire rPAP are available from Inspiration Healthcare.

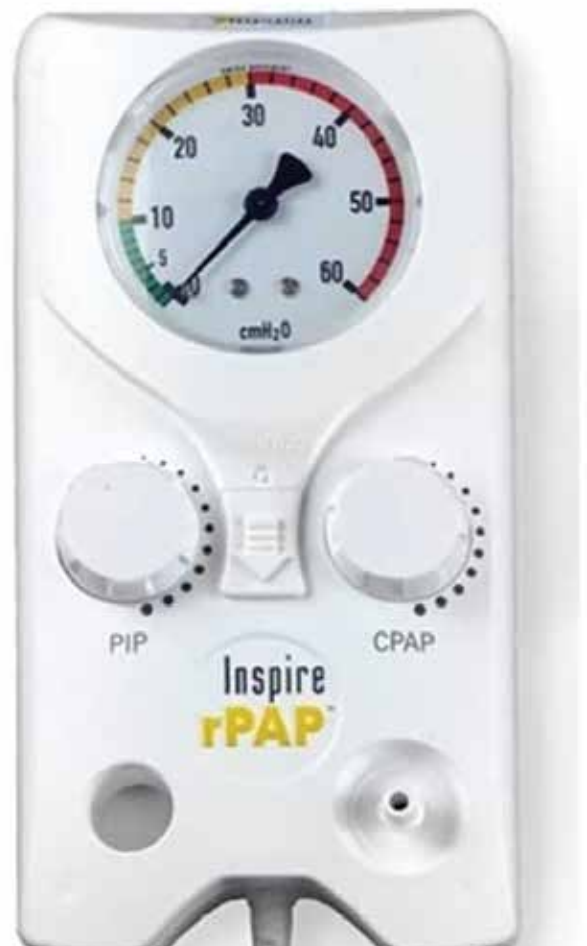


Comen BQ80 Infant Radiant Warmer

Some newborn babies may struggle to breathe at birth, especially those born preterm or with a medical condition. They may require prompt stabilization or resuscitation delay can exacerbate hypoxia increase the need for assisted ventilation and contribute to neonatal morbidity and mortality. In this issue of Infant, we look at the wide variety of equipment used in newborn resuscitation.



LifeStart is a neonatal bedside resuscitation unit, designed to accommodate all the necessary equipment to give babies the best start in life. The first few moments of life can be a dilemma for clinical staff. Despite the evidence outlining the benefits of optimal cord clamping, most guidelines state that priority should be given to resuscitation of the infant. The LifeStart eliminates this dilemma as its compact design allows it to be easily positioned close to the mother, enabling the infant's airway to be supported on a warm platform while the umbilical cord remains intact. This helps to facilitate improved placental transfusion and smoother cardiovascular transition.



LifeStart

The Dräger Babyroo TN300 is a configurable open care warmer with state-of-the-art thermoregulation capabilities as well as advanced integrated technologies to support emergency resuscitation and family-centered care. It comes with an optional Respiratory Support Module with Auto Breath

functionality and gas mixer options. The respiratory support interface requires minimal set up and helps to standardize protocols and meet resuscitation guidelines. It automatically delivers the desired respiration rate. Following initial stabilization, Auto Breath helps to bridge respiratory support until the patient arrives at the NICU.

Babyroo TN300



Available from Walters Medical, the Atom Infa Warmer i is a high-end multi-function open incubator that comprehensively supports a variety of medical tasks from the delivery room to the NICU, including resuscitation. The built-in oxygen blender and manometer, and resuscitation device support safe artificial ventilation and resuscitation. A CPR timer permits assessment of the health condition of the newborn every 30 seconds. The easy-to-use touch panel display provides temperature monitoring, weight measurement and visual alarm conditions. Other features include: an X-ray cassette tray accessible from three directions; a

far infrared heater to warm the mattress surface; a canopy that can be tilted independently so that the examination light always illuminates the treatment space, and a pressure-dispersion mattress that reduces the contact pressure on the infant's skin. A detachable baby guard enables easy cleaning and maintenance; a rotary damper allows the baby guard to be opened silently and hands free. Also available from Walter Medical are the Atom Resusci Flow and the Atome Resusci Flow with Blender – resuscitation units that perform artificial respiration with a stable pressure to ensure prompt and safe resuscitation.

The NeoFlow range of respiratory care products provides support for each step of a neonate's respiratory journey. NeoFlow Resuscitation Masks are designed to provide a secure seal with minimum pressure on sensitive skin. The masks incorporate core strength to resist collapse during use. They feature a hand positioning guide for optimal seal and ventilation along with finger grooves and

crystal-clear clarity. NeoFlowT Piece Resuscitation Circuits can support a baby through a resuscitation mask endotracheal tube with the added benefit of positive end-expiratory pressure (PEEP) valves for fine adjustment of pressure. They are supplied with anti-microbial protection, a double swivel elbow and additional connectors to accommodate all types of T-piece equipment.



Atom Infa Warmer i



Atom Resusci Flow

The NeoFlow Blender -Blender Buddy can be connected to any neonatal resuscitator for accurate control of flow and oxygen concentration.

An inline oxygen analyzer allows for accurate oxygen monitoring. The NeoFlow range is available from Armstrong Medical.



Atom Resusci Flow with Blender

COMBATTING CYBER THREATS IN HEALTHCARE TO SAFEGUARD PATIENT DATA



Healthcare pays the highest price of any sector for cyberattacks which is why cyber resilience is key. Praseeda Nair | Jun 05, 2024

Healthcare systems worldwide have increasingly turned to digital solutions to bolster clinical quality and cost-efficiency. The rapid adoption of technologies like electronic health records (EHRs), telemedicine, and Internet of Things (IoT) devices has streamlined operations, yet it has also expanded the attack surface for cybercriminals. With sensitive patient information at stake and security measures often inadequate, healthcare infrastructure has become a prime target for cyber threats.

The growing threat landscapes

The healthcare sector faced one of its most significant and devastating attacks in May 2021, when the Conti Ransomware Gang breached the Irish Health Service Executive (HSE). This breach occurred when an unsuspecting end-user opened a phishing email, unwittingly downloading malware that provided access to the network. Once activated, the Conti ransomware had a profound

national impact. Approximately 80 per cent of the system's data was encrypted, resulting in the national diagnostic imaging platform becoming inaccessible and the suspension of radiotherapy services in five major centers. The loss of access to patient details, appointments, and medical records forced over 50% (50 percent) of acute hospitals to postpone outpatient appointments and elective clinical investigations and interventions. Consequently, many organizations had clinical staff resort to paper-based processes to maintain essential clinical services.

"Healthcare tends to be targeted more frequently because it is a critical piece of infrastructure. Disruptions could have life-threatening consequences," says Richard Hummel, Senior Threat Intelligence Manager at cybersecurity solutions firm, Netscout. "Threat actors rely on this urgency, knowing healthcare administrators are more likely to pay

ransoms to restore critical services than other industries.”

More recently, in June 2023, St. Margaret’s Hospital, a small rural hospital in Illinois, closed its doors permanently in the aftermath of a 2021 ransomware attack. While cybercriminals have targeted hospitals of all sizes, analysts note that certain ransomware groups focus on smaller hospitals because of their weaker defences. Exacerbating the issue, health systems are grappling with a shortage of skilled cybersecurity professionals. According to a 2022 survey, 61 per cent of healthcare professionals cite the lack of tech staff as the number one barrier to achieving a robust cybersecurity program. “Cybercrime in all its forms is evolving and growing. The COVID-19 pandemic made this visible,” says Glen Prichard, Chief of Cybercrime and Anti-Money Laundering section at the United Nations Office on Drugs and Crime (UNODC). This highlights how vulnerable patient safety is to cyberattacks, “and how much work we all have ahead to secure lives,” he adds.

The global impact of cybersecurity threats
“Institutions are being targeted by a

variety of cybersecurity threats:

ransomware, supply chain attacks, and social engineering are all up,” Netscout’s Hummel adds. “Additionally, hacktivists involved in geopolitical issues are leveraging DDoS attacks to put pressure on critical national infrastructure, like the healthcare industry, to create chaos and force political change. We have seen a 14 per cent increase in healthcare targeting.” The healthcare industry reported the most expensive data breaches in 2023, averaging US\$10.93 million per incident, nearly double the cost in the financial sector. Safeguarding these digital assets is paramount to preserving confidentiality, integrity, and availability of patient information.

The interconnected nature of modern healthcare systems means that a breach in one area can compromise the entire infrastructure, posing direct risks to patient safety. To maintain operational continuity and prevent cascading failures, bolstering cyber resilience is imperative.

Cybersecurity investment in healthcare often trails behind other industries. IBM’s 2023 Cost of a Data Breach report indicates

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Don't let anyone open your privacy

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that the healthcare sector allocates only six to 10 per cent of its overall IT budget to cybersecurity. Despite the escalating costs associated with data breaches, only 51 percent (51%) of surveyed industries anticipate increasing cybersecurity spending after a breach, highlighting a concerning trend.

Healthcare organizations with incident response (IR) and testing teams in place experienced an average cost savings of US\$2 million compared to those without such resources, according to IBM. Organizations that leverage artificial intelligence (AI) and automation in cyber threat reduction achieved substantial cost savings of US\$850,000 compared to the global average breach cost.

The Middle East in focus

Cybersecurity incidents in the Middle East have surged to a record average cost of US\$8.07 million per data breach, a notable increase from US\$7.46 million in 2022. This figure stands significantly higher than the global average of US\$4.45 million per incident, positioning the Middle East as the second-highest region for data breach costs, trailing only behind the USA.

According to Sameer Chauhan, Director of the United Nations International Computing Centre (UNICC), these attacks are a wake-up call for the entire industry. "As the primary provider of shared cybersecurity services to the UN system, UNICC stands on the frontlines protecting our UN family against sophisticated cyber-attacks," he says.

He suggests bolstering cybersecurity in the healthcare sector by leveraging shared cybersecurity capabilities, "similar to UNICC's shared threat intelligence and cybersecurity resources for the UN system. We stand ready and eager to guide them in this regard."

Several nations in the Middle East, including the UAE, Bahrain, and Qatar, have implemented updates to their Data Protection Laws to enforce stricter security measures on user data.

Additionally, the UAE Central Bank has recently established a Networking and Cyber Security Operations Centre to

address escalating vulnerabilities and security threats. Similarly, the Saudi Central Bank has issued a comprehensive cybersecurity framework aimed at guiding risk management, protection, compliance, and other aspects for financial institutions. Risks associated with medical devices The emergence of smart and interconnected medical devices represents a groundbreaking transformation in healthcare, offering benefits like real-time health monitoring, personalised treatment options, enhancing medical accessibility. However, this heightened connectivity also amplifies the risk of cyber threats, underscoring the need for robust protection measures to safeguard critical healthcare services. Moreover, it poses potential risks to patient privacy, data integrity, and patient safety.

Recognising these challenges, the US Food and Drug Administration (FDA) issued guidelines in September 2023 for the cybersecurity of medical devices, stressing the importance of implementing robust security measures from the initial design phase to deployment.

"The health sector is known to be highly targeted by malicious actors. We are witnessing a relentless series of reported incidents that have caused significant disruption," says Miri Ofir, R&D Director at Check Point Software Technologies. "Medical vendors and manufacturers must protect their devices, ensuring the protection of patient data and safety." She recommends advanced technology solutions that shield against diverse cyber threats, such as access control breaches and memory corruption, without compromising device performance. It continuously monitors device activities to promptly identify and mitigate threats, preserving the privacy of health information and the integrity of medical devices.

Cyberattacks on healthcare systems can directly impact patient safety, as seen in instances where hospitals were unable to deliver timely care due to compromised IT systems. Addressing these vulnerabilities is essential for protecting both digital assets and human lives.

Fuel breakthroughs

The life sciences industry continues to experience unparalleled innovation and investment and talent flow in the the sector and breakthrough discoveries happen at a rapid pace.

Named the 2021 BD Sustainability Supplier of the Year , JLL helps life Sciences companies create compelling real estate and facilities strategies that improve efficiency , mitigate risks and delivers a sustainable work place

Lay the groundwork for rapid growth



India

Unemployment rate in India:6%
Nominal GDP per capita:\$2,238.13
Gini index :34.2
Life expectancy :67.24 in 2021.
Energy consumption per capita:630.9kg
Carbon dioxide emissions per capita:1.58t

Department of Health & Family Welfare
Ministry of Health & Family Welfare Government of India
Nirman Bhawan, New Delhi - 110011 Website: mohfw.nic.in



Market



Outlook

2023-24

ANNUAL REPORT



सत्यमेव जयते



Department of Health & Family Welfare
Ministry of Health & Family Welfare
Government of India

Department of Health & Family Welfare is committed to ensure the highest possible level of health and well-being of all through a preventive and promotive health care orientation in all development policies and universal access to good quality health care services without anyone having to financial hardship. Towards this end, Ministry of Health & Family Welfare is implementing various schemes, programs and national initiatives to provide universal access to the quality health-care. The approach is to increase access to decentralized public health system by establishing new infrastructure in deficient areas and by upgrading the infrastructure in the existing institutions. There is also need to strengthen the role of public sector in social protection against the rising costs of health care and the need to provide a comprehensive package of services without reducing the prioritization given to woman and children health.

There has been a significant improvement in creation of new facilities & infrastructure, through adequate staffing of this facility by qualified health personnel remains a problem. Availability of drugs has improved at all levels and the robust logistic arrangement for procurement and storage of these drugs has been put in place.

Our work this year, enabled progress towards the commitments of the National Health Policy, 2017. The National Health Mission (NHM), which is our flagship health systems reform programme, provides a robust platform for implementation of a range of interventions focused on primary and secondary health care in rural and urban areas.

NHM's efforts at strengthening health systems in States by allocating additional financial resources, flexibility in design and implementation ensured sharper focus on particularly marginalized and vulnerable populations and enabled us to achieve impressive improvements in several key indicators of RMNCH+A, communicable diseases. NHM seeks to strengthen public health delivery system at all levels.

Launched in 2018, Ayushman Bharat (AB) marks a paradigm shift to move from sectoral and selective approach of health

service delivery to a comprehensive range of health care service. Ayushman Bharat aims to holistically address health (covering prevention, promotion and ambulatory care), at primary, secondary and tertiary level by adopting a continuum of care approach. 1,72,148 Ayushman Arogya Mandir (AAM) erstwhile Ayushman Bharat Health & Wellness Centres have been operationalized till 31st March, 2024 as reported by the States/UTs on the HWC Portal. About 3.22 crore Wellness Sessions, including Yoga, has been conducted at AB-AAMs as on 31st March, 2024. As per the data updated by the States/UTs in AAM Portal, Screenings for NCDs (Hypertension/ Diabetes / Oral, breast & cervical cancer) – 184.45 Cr (cumulative progress 31st March, 2024) has been done at AAMs.

Total Tele consultations under eSanjeevani is 21.60 crore (as on 31st March, 2024).

eSanjeevani HWC is operational at 1,19,029 Spokes & 15,074 Hubs (as on 31st March 2024).

Ayushman Bhav Campaign was launched by Hon'ble President of India on 13th September, 2023. Ayushman Bhav Campaign is envisaged to saturate selected health care services in every village/ town in line with the commitment of Hon'ble Prime Minister to ensure reach to the last mile and enable access to health care services to everyone in the society.

Ayushman Bhav Campaign- has been initiated since 17th September 2023. In this campaign, till 31.03.2024, more than 9.5 crores Ayushman Cards and 13.48 crores ABHA IDs have been created. Total 24.66 lakhs Ayushman Melas have been organized at Ayushman Arogya Mandir with more than 17.84 crore footfalls. In the Ayushman Arogya Mandir melas, over 34.39 crore screenings were conducted for TB, hypertension, diabetes, oral cancer, breast cancer, cervical cancer, and cataract. Additionally, so far over 11.69 crore and 9.28 crore people benefited from free drugs and diagnostic services respectively. Weekly Health Melas are also organized in rotation by Medical Colleges at the Community health centres (CHCs), to ensure increased access to specialist services like Obstetrics and Gynaecology,

Paediatrics, Surgery, ENT, Eye and Psychiatric etc. at every block to ensure continuum of care.

NHM has attempted to fill the gaps in human resources by providing nearly 3.95 lakh additional health human resources to the States including 1,31,210 CHOs, 16,088 GDMOs, 5,151 Specialists, 78,954 Staff Nurses, 88,879 ANMs, 57,194 Paramedics, 497 Public Health Managers and 17,995 Programme Management staffs etc. on contractual basis, as on 31st December, 2023. Apart from providing support for health human resource, NHM has also focused on multi skilling of human resources. Up to 33% of NHM funds in high focus states can be used for infrastructure development. During the FY 2023-24 support is provided for construction of 8,702 units among the states / UT's. There are 1,575 ongoing works, 2,075 new construction works consisting of DH, SDH, CHC, PHC, SC and 5,052 other repairs / renovation / upgradation/ strengthening works among the 8,702 units for which support is provided. In the ongoing works of 1,575 units DH (143 nos), SDH (38 nos), CHC (643 nos), PHC (239 nos) and SC (512 nos) are supported. Further, among the new construction proposals of 2,075 units, DH (28 nos), SDH (330 nos), CHC(132nos), PHC(333nos),SC(1,252 nos) are approved in the FY 2023-24 (up to 31.03.2024). The remaining 5,052 works are miscellaneous works such as repairs / renovation of existing facilities, up gradation of existing facilities to the prescribed norms of IPHS. Apart from the above, financial assistance towards rent of the units, central heating systems, construction/ maintenance of hatcheries, pits, equipment etc. were also supported.

As on 31st December, 2023 States/UTs have 1433 mobile medical units which includes mobile health units, mobile medical / health vans, boat clinics, eye vans / mobile ophthalmic units, dental vans under NRHM and NUHM. To ensure availability of essential drugs and reduce the Out of Pocket Expenditure (OOPE) of the patients visiting the public health facilities, Government has rolled out the Free Drugs Service Initiative (FDSI) under National Health Mission (NHM). Ministry has

recommended facility wise Essential Medicines List (EML) to be made available at the public healthcare facilities i.e. with 106 Sub Health Centre Health & wellness centre (SHC- HWCs), 172 Primary Health Center, Health wellness Center(PHC-HWCs), 300 communities Health Centers Sub-District Hospital, 381 District Hospital (DHs). However, States have the flexibility to add more medicines and Essential Drugs List (EDL) of States which vary from State to State. Under, Free Diagnostic Service Initiative expanded range of diagnostics are available at all level of public health facilities (14 tests at Sub Centre, 63 tests at PHC, 97 tests at CHC, 111 tests at SDH and 134 tests at DH). As on 31st March, 2024 under Free Diagnostics Service initiative, Laboratory services has been implemented in 36 States/UTs.

To address the issue of non-functional equipment across public health facilities, comprehensive guidelines were designed on Biomedical Equipment Management and Maintenance Program (BMMP) and disseminated among States / UTs. As on 31st March, 2024 BMMP has been implemented in 33 States/UTs.

Presently 3031 ALS, 15,250 BLS, 4343 PTV, 17 Boat and 81 Bike Emergency Response Service Vehicles are supported under NHM, besides 7319 empanelled vehicles for transportation of patients, particularly pregnant women and sick infants from home to public health facilities and back. Ministry of Health and Family Welfare (MoHFW), has identified Schemes / programs to be showcased during the course of the "Viksit Bharat Sankalp Yatra" such as Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana as the Flagship Scheme of MoHFW and national TB Elimination Programme for the campaign with additional focus on Sickle Cell Anaemia Elimination Mission in Tribal Area. Further, Health Camps are also being organised at the places of halt of the mobile van where in Screening and referral for Tuberculosis, Non-Communicable Diseases and Sickle Cell Disease, Nikshay Mitra Registration and Consent under Nikshay Mitra, Seeding of Bank Accounts for Nikshay Poshan Yojna, Ayushman Card creation

and Physical Card distribution are conducted.

Till 29th Feb, 2024 information pertaining to 2,38,006 Gram Panchayats have been received with the total footfall of more than 7,34,08,564 people. 2,79,74,148 Ayushman Cards have been created and 51,05,148 Ayushman cards have been physically distributed. 3,91,33,509 people have been screened for Tuberculosis, out of which more than 11,90,526 were referred to higher Public Health Facilities. 43,00,584 people have been screened for Sickle Cell Disease, out of which 84,048 were found to be positive and referred to higher Public Health Facilities. Around 2,81,83,990 people were screened for Hypertension and 2,69,33,141 people screened for Diabetes.

To eliminate sickle cell disease, Sickle Cell Anaemia Elimination Mission has been launched by Hon'ble Prime Minister from Madhya Pradesh on 1st July, 2023 with mission of targeted screening of 7 crore people till year 2025-26 in affected 278 districts of tribal areas and counselling through collaborative efforts of central ministries and state governments.

The Fifteenth Finance Commission (FC-XV), constituted by the President on November 2017 was, inter-alia, mandated to recommend measures needed to augment the Consolidated Funds of the States, for the period spanning FY 2020-25. As per FC-XV Recommendations, Rs. 43,928 crores has been allocated for healthcare facilities in rural areas to be coordinated by Rural Local Bodies (RLBs). Similarly, Rs. 26,123 crores has been allocated for healthcare facilities in urban areas to be coordinated by Urban Local Bodies (ULBs).

PM Ayushman Bharat Health Infrastructure Mission (PMABHIM) Scheme with an outlay of about Rs. 64,180 Cr (to be implemented till 2025-26) has been announced in Budget of FY 2021-22 on 1st February, 2021, to focus on developing capacities of health systems and institutions across the continuum of care at all levels viz. primary, secondary and tertiary and on preparing health systems in responding effectively to the current and future pandemics/disasters. The Scheme has been launched nation-wide by the

Hon'ble Prime Minister on Monday 25th October, 2021 at Varanasi, Uttar Pradesh. One of the major achievements in respect of the Pharmacy Act, 1948 is the Pharmacy (Amendment) Bill, 2023 which was notified on 15-08-2023 as Act 29 of 2023. Vide the Act, Section 32C has been inserted in the Pharmacy Act, 1948.

This Section addresses the issues which arose out of MHA's adoption order dated 05-10-2020 and 23-10-2020 which were to adopt the Pharmacy Act, 1948 in UT of Jammu and Kashmir and UT of Ladakh respectively, after the enactment of J&K Re-organization Act, 2019.

To bring institutional reforms in the sector of nursing education, the Parliament has passed the National Nursing and Midwifery Commission (NNMC) Act, 2023 and the same has been notified on 14.08.2023. It will replace the Indian Nursing Council with a new regulatory structure.

The Act provides for establishment of a National Nursing & Midwifery Commission and Autonomous Boards at the National level and corresponding State Nursing and Midwifery Commissions for regulation and maintenance of standards of education and services by nursing and midwifery professionals; regulation of their Profession conduct; creation and maintenance of on-line and live Registers; assessment and recognition of nursing and midwifery institutions, etc.

The National Nursing and Midwifery Commission Rules have also been notified on 13.03.2024.

In 2023-24, Union Cabinet approved the proposal of establishment of 157 new Nursing Colleges in co-location with existing 157 Medical Colleges.

The measure will bring parity in the geographic distribution of the Government Nursing Colleges in the country. The Government through Central Sector Scheme of "Development of Nursing services" strengthens nursing infrastructure and services in the country. Under the Training sub component of the scheme Nursing Personnel are trained in identified domains/topics. Further, during the financial year, under the CSS Scheme for training of Nurses, Rs 1.72 Cr was released for 76 Courses which will benefit

2280 Nurses. Under the second sub-component of the scheme Upgradation of schools of Nursing to colleges of Nursing, one-time financial assistance of Rs.7.00 crore per institution is provided for upgrading School of Nursing in to college of Nursing. An amount of Rs.22.86 crore has been sanctioned for upgrading 8 schools of nursing (SoN) into college of nursing (CoN) for the year 2023-24.

NTEP responded with timely mitigation measures like integration of TB and COVID-19 bi-directional screening, diagnostic and treatment capacity upgrades and SOPs for co-located testing for TB (among COVID-19 patients as well as ILI/SARI patients), introduction of all oral shorter regimen for MDR-TB and testing for COVID-19 (among notified TB patients) to augment surveillance for COVID as well as strengthening TB case finding efforts. Periodically updated advisories, directives, and guidance documents were also issued to the States. Large-scale active TB case-finding campaigns were undertaken with massive screening and testing in communities, health outreach workers and community volunteers were engaged to facilitate surveillance of symptoms within households, doorstep collection of samples and delivery of monthly medicine stock to help patients stick to treatment regimens and teleconsultations with patients. Molecular diagnostic capacities for testing TB and Drug Resistant TB (DR-TB) were rapidly expanded to ensure the availability of at least one NAAT machine in each district.

With these mitigation measures and catch-up campaigns, NTEP has achieved over and above the pre-pandemic levels in 2022 with a total TB case notification of 24.2 lakhs. In 2023, a total of 25,52,257 patients were notified, out of whom 24,37,949 were put on treatment.

The overall Treatment Success Rate of TB-notified patients was 87.6% in 2023, higher than the previous year's achievement.

On September 9, 2022, the Hon'ble President of India Smt. Droupadi Murmu, launched the 'Pradhan Mantri TB Mukh Bharat Abhiyaan' and 'Ni-kshay 2.0'. This community-supported initiative for TB

patients whereby Elected Representatives, Officers from Central and State Ministries, PSUs, corporates, professional associations, medical colleges, and institutions, and individuals can register as Ni-Akshay Mitras and adopt TB patients for providing necessary nutritional, vocational and additional diagnostic support accelerating the "Jan Andolan" for ending TB by 2025. Since its launch, this unique community-led initiative has seen participation by more than 1.5 lakh Ni-kshay Mitras (donors) committed to supporting over 10 lakh TB patients and distributed more than 15.50 lakh nutrition baskets. National AIDS and STD Control Programme (NACP) in India has been recognised globally as a success story and the Government of India is committed for achieving the Sustainable Development Goals (SDGs), which include the SDG targets to "End the AIDS epidemic as a Public Health threat by 2030". Under NACP-V, to control the HIV threat in the country, various initiatives have been undertaken which include 'National Red Run' an initiative intended to spread HIV awareness through sports; 'Integrated Health Campaign' to reach the population at-risk in the north eastern states; 'Integrated STI, HIV, TB and Hepatitis (ISHTH) Campaign' in Prison and other closed settings across India; 'virtual interventions' to reach out to the population that operates through virtual platforms, 'Sampoorna Suraksha Strategy to cover at-risk HIV-negative population through a comprehensive package of services.

The HIV & AIDS (Prevention & Control) Act 2017, which was notified in September 2018, provides a legal framework to protect and secure human rights of persons infected or affected by HIV/AIDS. NACO has signed 18 Memorandums of Understanding with key Ministries/ Departments to catalyze the HIV/AIDS response under their respective mandates.

Under NACP-V, prevention services for High-Risk and other vulnerable populations are being provided through 1577 Targeted Intervention sites, 155 Link Worker Schemes, 427 OST centres including Satellite centres and 1220 Prison

and 837 Other Closed Settings. There are 1,133 designated STI/RTI Clinics for Sexually Transmitted Infection (STI) management. HIV confirmatory testing services are being provided through 29,087 counselling and testing centres.

Accessible and affordable treatment services are being provided through 772 antiretroviral therapy (ART) centres and 1,261 link ART centres and 64 public health laboratories for viral load testing. Around 6 crore HIV tests were conducted to ensure early detection of HIV. More than 16.8 lakh People living with HIV (PLHIV) are currently on life-saving free antiretroviral treatment. 13.78 lakh viral load tests were conducted in 2023-24.

National Programme for Control of Blindness and Visual Impairment (NPCBVI) was launched in the year 1976 as a centrally sponsored scheme (now 60:40 in all States and 90:10 in NE States and hilly States) with the goal of reducing the prevalence of blindness.

The goal to reduce the prevalence of blindness to 0.25% by 2025. As a newer initiative Mission Mode Cataract Surgeries campaign (Netra Jyoti Abhiyan) have been launched for the FY 2022-25 with an aim to finish off any prevailing cataract surgery backlogs and strengthened service delivery.

Under the National Health Mission's (NHM) component of NP-NCD, 753 NCD clinics at district level and 6238 NCD clinics at CHC Level have been set up. In addition, 220 Cardiac Care Units (CCUs) and 356 Day Care Cancer centres have also been setup in different parts of the country.

Under the strengthening of Tertiary Care Cancer facilities Scheme of NP-NCD, States are being supported for setting up/strengthening of State Cancer Institutes (SCI) and Tertiary Care Cancer Centres (TCCs) for providing comprehensive cancer care in the country. Under the programme, 19 SCIs and 20 TCCs were approved in different States/UTs. Pradhan Mantri National Dialysis Programme (PMNDP) portal launched on 5th May 2022 is integrated with ABHA ID. The portal will integrate all the dialysis centres operational in the States/UTs under NHM with building of registry and facilitating

portability across the country.

The Ministry is presently conducting National Family Health survey (NFHS-6). For smooth implementation of the survey work, four committees viz., Steering Committee, Financial Management Committee (FMC), Technical Advisory Committee (TAC) & Project Management Management Committee (PMC) were constituted by the Ministry. Furthermore, three Sub-Groups of TAC have also been constituted by the Ministry to discuss sampling design, sampling frame, survey questionnaire contents and Clinical Anthropometric Biochemical (CAB) components respectively. The pre-test exercise of the survey was conducted during 20th June- 8th July 2022 in two districts of Uttarakhand state of India to test the survey tools and protocols. Based on the feedback and field experience during Pre-test, the Computer Assisted Personal Interviewing (CAPI) and the questionnaires were updated. At present, the main survey field work for NFHS-6 is in progress which is being conducted in two phases covering about half the country in each phase with an aim to provide district-level estimates for most of the indicators for all 731 districts (as on 30th June, 2021) with approx. 6.77 lakh sample households. The main survey fieldwork has been completed in 20 States/UTs and is in progress in rest 15 States/UTs. Tobacco Free Youth Campaign: Union Minister for Health & Family Welfare, Dr. Mansukh Mandaviya launched the Tobacco Free Youth Campaign on 31.05.2023 on the occasion of World No Tobacco Day, 2023. The 60 days campaign was successfully implemented from 31st May to 31st July, 2023 by all States and UTs to create intensive awareness on harmful effects of tobacco use, particularly amongst the youth and rural communities. These are the glimpses of activities and campaigns undertaken by MoHFW during the F.Y. 2023-24; the achievements and development details are described in this Annual Report in further details.

(APURVA CHANDRA)

Secretary Department of Health and Family Welfare Ministry of Health and Family Welfare

CENTRAL HEALTH SERVICE

The Central Health Service, which was constituted in 1963, was restructured in 1982 to provide medical manpower to various participating units like Directorate General of Health Services (Dte.GHS), Central Government Health Service (CGHS), Government of National Capital Territory (GNCT) of Delhi, Ministry of Labour, etc. Since inception, a number of participating units like Employees' State Insurance Corporation (ESIC), New Delhi Municipal Corporation (NDMC), Municipal Corporation Delhi (MCD), Himachal Pradesh, Manipur, Tripura, Goa, etc. Have formed their own cadres.

Jawaharal Institute of Postgraduate Medical Education Research (JIPMER) Pondicherry which has become an autonomous body w.e.f. 14th July 2008 has gone out of CHS cadre. Govt. of NCT of Delhi, which has made their own cadre namely Delhi Health Service (DHS) for Non-Teaching and General Duty Medical Officer (GDMO) doctors has also gone out of CHS cadre. At the same time, units like CGHS have also expanded. The Central Health Service now consists of four Sub-cadres and the present strength of of

Sl. No.	Department	Total No. of Audited Units
1	Health & Family Welfare	16
2	Department of Health Research	01
Total		17

During the F.Y. 2023-24, a total no. of 112 audit paras was raised which includes 16 paras of financial proprietary/implications amounting to Rs. 2462 lakhs (approx). A total number of 3540 Paras were settled in which an amount of Rs. 4360.00 lakhs (approx.) recovered during the F.Y. 2023-24. The role of Internal Audit is growing and shifting from compliance audit –confined to examining the transactions with reference to government rules and regulations- to more advanced technique of examining the performance and risk factor of an entity.

4. Public Financial Management System

60 Arab Health World

(PFMS)

The Public Financial Management System (PFMS) provides an end-to-end solution for processing, monitoring, tracking, accounts, reconciliation and reporting and all PAOs of this Ministry is already using PFMS portal for e- Payments including Scheme payments. All releases/payments under the Central Sector Schemes (CS)/ Centrally Sponsored Schemes (CSS) are being carried out through PFMS application in just-in-time mode. The office of the CCA keeps a close tab on these developments and implements them in a pro-active manner. Formation of dedicated PFMS cell under O/o CCA, MoHFW.

A dedicated PFMS Cell for Capacity Building & Grievance resolution has been formed under O/o CCA. As of now, a total no. of 70 trainings (Online/Physical mode) has been imparted for the different Stakeholders under various models of the PFMS in the Ministry. The PFMS Cell ensures prompt resolution of PFMS implementation related issues through multiple modes (Email/Online / On-site support/Calls).

The details of the training imparted by the PFMS cell is as under:-

S. NO	Model of PFMS	No. of Trainings
1	Treasury Single Account (TSA)	17
2	Single Nodal Account (SNA)	18
3	Central Nodal Account (CNA)	28
4	E-Bill	6
5	Eat	1
6	Grand Total	70

A. Treasury Single Account

The Hon'ble Finance Minister in Para 92 of Budget speech FY 2021-22 under Government Financial Reforms announced the Universal implementation of Treasury Single Account (TSA) in Autonomous Bodies (ABs). The objective of TSA was to introduce Just in Time (JIT) release of funds so as to minimize the cost of borrowing and to prevent idle parking of funds in

subsidiary accounts after release from the Consolidated Fund of India.

O/o CCA, MoHFW has undertaken various preparatory activities for smooth implementation of TSA in the ministry.

a. Setting up a dedicated TSA cell for targeted action.

b. Sensitisation of ABs by conducting hands on training sessions PDMS/TSA.

c. Preparation and circulation of user friendly manuals on TSA.

d. Coordination with all stakeholders viz. O/o CGA, RBI Programme Divisions and ABs for opening of RBI accounts, mapping of TSA bank accounts with scheme and its components, DSC enrolment, facilitating token payments etc.

e. Handholding, active grievance redressal and helpdesk support for all ABs.

All the activities have been successfully completed and during FY 2023-24, the following 09 ABs were on boarded on Treasury Single Account (TSA) :-

a. Department of Health & Family Welfare:

1. All India Institute of Medical Sciences, New Delhi

2. Postgraduate Institute of Medical Education & Research, Chandigarh

3. Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry

4. Food Safety and Standards Authority of India, New Delhi

5. Regional Institute of Medical Sciences (RIMS), Imphal

6. National Institute of Mental Health & Neuro Sciences, Bengaluru

7. National Health Authority, New Delhi

8. North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Shillong

b. Department of Health Research:-

1. Indian Council of Medical Research, New Delhi

B. Single Nodal Account (SNA)

The concept of Single Nodal Account (SNA) was introduced by Ministry of Finance in March 2021 to bring 'more effective cash management' and 'efficiency in public expenditure management' in respect of Centrally Sponsored Schemes (CSS). For Implementation of SNA, States are required to designate one Single Nodal Agency for each CSS and open a Single Nodal Account in a Scheduled Commercial Bank authorized to conduct Government Business. Central Government is being released the Central share to State Treasury. State Governments are required to transfer the Central share along with State share to the Single Nodal Account within a period of 21 & 40 days respectively. Status of implementation of CSS in Ministry of Health and Family Welfare is as given below:-

Sr. No	Scheme Name	No. of Agencies Registered as SNAs	Total Implementing Agencies Mapped
1	Flexible Pool for RCH & Health System Strengthening, National Health Programme and National Urban Health Mission (4063)	57	37,566
2	Human Resources for Health and Medical Education (9157)	55	401
3	Tertiary Care Programs (2035)	59	141
4	Strengthening of State Drug Regulatory Systems (3663)	27	86
5	Pradhan Mantri Ayushman Bharat (PM-ABHIM) (3991)	35	565
Grand TOTAL		233	38,759

C. Central Nodal Account (CNA)

The procedure for flow of funds under Central Sector Schemes has been issued by M/o Finance, O/o Expenditure vide O.M. No. 1(18)/PFMS/ FCD/2021 dated 9th March 2022.

There are 2 (Two) Models; Model-1 (Having annual outlay more than 500 Cr.)

- Implementation through Treasury Single Account (TSA) and Model-2 (Having annual outlay less than 500 Cr)- Implementation through Scheduled Commercial Banks. Total no. of 23 Central Sector Schemes in this Ministry, out of which 11 schemes in Department of Health & Family Welfare having annual budget of Rs 8,820.27Cr, and 5 Schemes in Department of Health Research having annual budget of Rs 566.42 Cr. have been identified for on boarding on CNA module. 22 New AIIMS and CPSE are on-boarded on CNA model-1 as per list given below:

E Electronic-Bill (E-BILL)

The Hon'ble Finance Minister launched the electronic-bill (e-bill) system developed in PFMS on 02-03-2022 for pilot roll out. In e-Bill module, all claims will be submitted digitally and bills will be processed in online mode through PFMS e-Bill System. This module of PFMS will help in end to end digitization with more transparency. All PAOs (11) have been selected for E-bill Implementation. As on date 10 PAOs have processed 2417 E-Bills.

F. Pension Module

To streamline Pension related process, the O/o Controller General of Accounts has launched Pension module in PFMS and it is integrated with Bhavishya Portal of Department of Pensions. The data from Bhavishya Portal has been made available to PAOs for smooth processing of pension cases. Further, the Pension Payment Order (PPO) of pensioners is forwarded to CPAO electronically also to ensure timely release of pension to the pensioners.

G. CDDO Module

O/o Controller General of Accounts has introduced the Cheque Drawing and Disbursing Office (CDDO) Module for smooth and transparent functioning of CDDOs. All the 49 CDDOs under MoHFW are onboard on CDDO Module of PFMS.

H. Employee Information System (EIS)

Employee Information System (EIS) is a centralized module which is integrated with PFMS Web based System/Package for Personnel Information and Payroll. It provides comprehensive structural facilities for Drawing and Disbursing Offices working for different Departments/ Ministries of the Government of India. Employee Information System has been implemented in all the Drawing and Disbursing Offices, who are preparing salary bills, under the jurisdiction of M/o Health and Family Welfare.

. GPF Module

All PAOs and merged DDOs under MOHFW are onboarded on GPF Module of PFMS. The GPF ledger of subscriber is maintained in the module and also the Annual GPF statement of subscribers is generated from this module. This has enhanced the efficiency and accuracy while ensuring timely issue of Annual GPF statements to all the subscribers.

5. Paperless Medical Claim Settlement for CGHS Pensioners

This digital transformation involved end-to-end digitization of Medical claim submission & payment processes at Central Government Health System (CGHS) in MoHFW. The Pilot was launched in FY 2021-22 as a collaborative efforts of O/o CCA, CGHS, & National health Authority. This initiative is aimed to make the medical bill processing & payment system efficient, responsive, transparent and Just-in-Time. It covers 15 lakh Government pensioners and their families spread across the India. The new system is transparent and offers last mile visibility as payments are released to Hospitals directly by PAOs. All the medical claims are captured digitally and can be accessed and processed by all the stakeholders at any given point of time. With the implementation of online medical claim submissions facility, it is expected to reduce the medical claim processing time in due course of time.

6. Workshop on "Improved Financial Management in Autonomous Bodies under the Administrative Control of Ministry of Health & Family Welfare" the Ministry of Health & Family Welfare has a large number of autonomous bodies under its administrative control through

which many Central and Centrally Sponsored Schemes are implemented in Health Sector.

Two workshops were organised at National Institute of Health & Family Welfare, New Delhi on 12-13 April, 2023 & 4-5 January, 2024 under the leadership of Additional Secretary & Financial Adviser, MoHFW and in coordination with Chief Controller of Accounts, MoHFW with the objective to bring uniformity in approach towards financial management and accounting procedure in autonomous bodies and to enable them to adopt standard cannons of financial propriety, improved, efficient and effective framework of fiscal management while providing the necessary flexibility to facilitate timely delivery of services.

The workshops were attended by deligate from about 74 autonomous bodies and officers from Ministry of Finance, MoHFW, Office of CGA, DGA, Office of CCA and GeM organization.

The main topics covered during the said workshops were :

(i) Procurement of Goods, Works and Services

(ii) Government e-Market

(iii) Chart of Accounts and Software in ABs

(iv) Risk based internal controls/Audit;

(v) Process of filing of GST returns in ABs

(vi) Understanding of Audit of Annual Accounts of ABs and SAR observations.

INFORMATION & FACILITATION CENTRE

To strengthen the Public Redressal Mechanism in the Ministry of Health and Family Welfare, an Information and Facilitation Centre is functioning adjacent to Gate No. 5, Nirman Bhawan, New Delhi. The Centre, inter-alia, provides information on:

1. Information and guidelines to avail financial assistance from the Umbrella Scheme of Rashtriya Arogya Nidhi (RAN) and Health Minister's Discretionary Grant (HMDG).

2. Guidelines and instructions regarding the issue of 'No Objection Certificate' to Indian doctors to pursue higher medical studies abroad.

3. Information and guidelines relating to CGHS and queries relating to the work of the Ministry.

4. Receiving petitions/suggestions on



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PM-ABHIM (SNA SPARSH Model)

As on 31.03.2024 (Rs. in Cr.)

Sr. NO.	State	Total Mother Sanction issued	Total Expenditure	% Expa gainst Mother sanction	Unspent Mother Sanction
1	Rajasthan	33.81	21.03	62.20%	12.78
2	Odisha	99.82	75.60	75.74%	24.22
3	Karnataka	71.73	33.70	46.99%	38.03
4	Telangana	58.34	55.64	95.38%	2.70
5	Jharkhand	34.09	-	0.00%	34.09
6	Chhattisgarh	24.69	0.04	0.17%	24.65
7	Assam	88.91	0.14	0.16%	88.77
8	Andhra Pradesh	-	-	-	-
9	Gujarat	-	-	-	-
10	Bihar	-	-	-	-
		411.39	186.16	45.25%	225.23

Public Grievances.

General queries relating to the Ministry which were received in the Information and Facilitation Centre were disposed of to the satisfaction of all concerned.

1.1.10 PROCUREMENT DIVISION

Procurement-I Section has two units namely (i) Vaccine Procurement Cell and (ii) Empowered Procurement Wing. The broad functions of these two units are given below:

i) Vaccine Procurement Cell (VPC) procures different vaccines for the Universal Immunization Programme (UIP).

To ensure timely availability of vaccines to the Programme, all necessary actions are contemplated well in advance normally a year ahead to procure the vaccines. For procurement of TD, Pentavalent, Hep-B, ROTA, DPT, IPV, and JE vaccines for the year 2023-24, tenders were analysed after due process and adhering to all Government of India's guidelines and instructions including Public Procurement Policy for Make in India Orders 2017 as amended from time to time to realize the goal of an Atmanirbhar Bharat. The orders were issued to the suppliers for the contracts to

supply vaccines under the UIP. For other vaccines i.e. PCV, and BCG Vaccines [Adult Vaccination under National TB Elimination Programme (NTEP)], the tendering processes have been analysed. Tenders for all these vaccines have been floated on GeM.

ii) Empowered Procurement Wing (EPW) acts as a nodal Wing of the Department to coordinate for implementation of the Government's policies related to public procurement i.e. General Financial Rules (GFR), 2017, Public Procurement Policy for Micro and Small Enterprises (MSEs) Order 2012, Government e-Marketplace (GeM), Make in India Orders, etc.

Procurement-I (EPW) Section is also responsible for handling all administrative matters of:

- (A) Central Medical Services Society (CMSS)
- (B) Medical Stores Organization (MSO).

The details are given below:

1.1.11 CENTRAL MEDICAL SERVICES

SOCIETY (CMSS) Central Medical Services Society (CMSS), the Central Procurement Agency of the Ministry of Health and Family Welfare was registered as a society on 22.03.2012 vide Registration No.

Year	Total Procurement	Programme Covered
2015-16	Rs. 52.85 Crores	FWP, NVBDCOP
2016-17	Rs. 240.75 Crores	FWP, NVBDCP, RNTCP
2017-18	Rs. 1391.78 Crores	FWP, NVBDCP, RNTCP, NACP, NVHCP & UIP
2018-19	Rs. 2068.65 Crores	FWP, NVDCP, RNTCP, NACP, NVHCP & UIP.
2019 - 20	Rs. 2310.43 Crores	FWP, NVBDCP, RNTCP, NACP, NVHCP, UIP, NCDC & NPSVH
2020 - 21	Rs. 3387.75 Crores	FWP, NVDCP, RNTCP, NACP, NVHCP, UIP, NCDC & NPSVH
2021 - 22	Rs. 1058.09 Crores	FWP, NVBDCP, NTEP, NACP, NVHCP, UIP, & Covid materials.
2022 - 23	Rs. 1017.72 Crores	FWP, NCVBDC, NTEP, NACP.
2022 - 23	Rs. 1017.72 Crores	FWP, NACP, NTEP, NVHCP, NTTL, NCVBDC, UIP & CHP.

A total of procurement cases worth Rs 14,677.89 crore from 2015-16 to 2023-24 (upto 31.03.2024) were analyzed by CMSS, including procurement of following medicines/ worth Rs. 3193.35 crore for the period from 01.01.2023 to 31.03.2024

S/094/2012 for procuring health sector goods in a transparent and cost-effective manner ensure uninterrupted supply of health sector goods to State / UT Governments by setting up IT enabled supply chain infrastructure including warehouses in 50 locations. At present, warehouses have been established at 18 locations and all States/UTs have been covered by these warehouses.

The CMSS has an ex-officio Chairperson of Governing Body, the Additional Secretary in-charge of procurement in the Ministry of Health & Family Welfare. There is a full time Director General & Chief Executive Officer, a Joint Secretary level of central responsible for overall management of Society.

He is assisted by General Manager each responsible for Procurement, Logistics, Finance, Quality Assurance, Administration and medical equipment, Procurement Related Achievements:-

Having commenced operation in 2016, CMSS has completed following procurement for centrally sponsored programs.



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(FROM 01.01.2023-31.03.2024)

Programmes of MoHFW	Procurement of medicines/ other goods/ services	Procurement Total Value
NACP (National AIDS Control Programme)	Procurement of Condoms, ARV Drugs, HIV -I Test Kits, Alere PIMA CD4 Test Kits, HIV (Rapid) Antigen Test Kit, Injection Benzathine Penicillin with sterile water, Buprenorphine Drugs and CD4 Machines.	Rs.1229.54 Crores
NTEP (National Tuberculosis)	Procurement of Anti TB Drugs, Lab. Consumables, ICT kits, Delamanid tab,	Rs.1689.31 Crores
Elimination Programme)	Is oniazid tablets, Cycloserine, Linezolid, DSTB IP(P), Syringes, TrueNat Chips, CAMC of CBNAAT Machines and CAMC of MGIT -960 Machines.	
NVHCP (National Viral Hepatitis Control Programme)	Procurement of Hepatitis B Drugs and Hepatitis C Drugs.	Rs. 54.88 Crores
FWP (Family Welfare Programme)	Procurement of Contraceptives, Social Marketing Contraceptives, Chhaya, OCP. Procurement of Condoms & OCP.	Rs.140.46 Crores
NTTL (National Tobacco-Testing Laboratory)	Procurement of Semi Major Equipment.	Rs.2.79 Crores
NCVBVDC	Procurement of DEC & Ivermectin Tablets, RDT Malaria Kit, Synthetic Pyrethroid.	Rs. 71.83 Crores
CHP	Procurement of IFA (Pink) Syrup ,	Rs. 4.54 Crores

1.1.12 WELFARE MEASURES FOR DIFFERENTLY ABLED PERSONS

The representation of Persons with Disabilities (PwDs) and their welfare related issues are also being dealt by Welfare & PG Section of this Ministry. The representation of Persons with Disabilities in D/o Health & Family Welfare and Dte. GHS for financial year 2023-24 is as below:

Groups of post	Total Employees	A	B	C	D	E
A	1526	3	1	69	0	0
B	4737	3	2	36	0	0
C (Ex -Sweeper)	4853	37	20	112	3	1
C (Sweeper)	374	0	20	0	0	0
Total	11256	43	23	217	3	1
Percentage		0.37	0.19	1.88	0.02	0.008

A: Blindness and low Vision, B: deaf and Hard of Hearing, C: Locomotor Disabilities including Cerebral Palsy, Leprosy cured, dwarfism, acid attack victims & muscular dystrophy.,

D: Autism, Intellectual disability, specific learning disability and mental illness,

E: Multiple Disabilities from amongst A to D including deaf-blindness

1.2 NATIONAL HEALTH MISSION (NHM)

1.2.1 INTRODUCTION

The National Rural Health Mission (NRHM) was launched by the Hon'ble Prime Minister on 12th April 2005, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups.

The main programmatic components include Health System Strengthening, Reproductive-Maternal-Neonatal-Child and Adolescent Health (RMNCH+A), and control of Communicable and Non-Communicable Diseases. NHM envisages universal access to equitable, affordable & quality health care services to all citizens through systems and institutions that are accountable and responsive to people's needs.

The Union Cabinet vide its decision dated 1st May 2013 approved the launch of National Urban Health Mission (NUHM) as a Sub-Mission of an over-arching National Health Mission (NHM), with National Rural Health Mission (NRHM) being the other Sub-mission. Further, the Union Cabinet vide its decision dated 21.03.2018 approved the continuation of National Health Mission (NHM) from 01.04.2017 to 31.03.2020. Department of Expenditure, vide their O.M. dated 10.01.2020 accorded approval for the interim extension of National Health Mission (NHM) for a period till 31.03.2021 or till the date the recommendations of 15th Finance Commission come into effect, whichever is earlier.

Further, the Government India has accorded the approval for continuation of National Health Mission from 01.04.2021 to 31.03.2026 or till further review as communicated vide Ministry of Finance, Department of Expenditure's O.M. No. 01(01)/PFC-1/2022 dated 01st February, 2022.

1.2.2: Major Achievement Under NHM/NRHM

1) Comprehensive Primary Health Care (CPHC) through Ayushman Arogya Mandirs (AAMs) erstwhile Ayushman Bharat Health and wellness Centres-Launched in 2018, Ayushman Bharat (AB) marks a paradigm shift to move from sectoral and selective approach of health service delivery to a comprehensive range of health care service. Ayushman Bharat aims to holistically address health (covering prevention, promotion and ambulatory care), at primary, secondary and tertiary level by adopting a continuum of care approach. Ayushman Bharat comprises of two components:

The first component pertains to creation of 1,50,000 Health and Wellness Centers (AB-HWCs) by upgrading the Sub Health Centers (SHCs) and Primary Health Centers (PHCs) in rural and urban areas which will bring health care closer to the community. These AB-HWCs will provide Comprehensive Primary Health Care (CPHC), by expanding and strengthening the existing Reproductive & Child Health (RCH) services and Communicable Diseases services and by including services related to Non-Communicable Diseases (NCD), to begin with the common NCDs such as, Hypertension, Diabetes and 3 common cancers of Oral, Breast and Cervix. It is also envisaged to incrementally add primary healthcare services for Mental health, ENT, Ophthalmology, Oral health, Geriatric and Palliative health care and Trauma care as well as Health promotion and wellness activities like Yoga. Most of the States/UTs have rolled out these additional Package of services in a phased manner. As on 31st March 2024, 1,20,323 AAMs (70%) have rolled out all 12 expanded packages of services.

b. Ayushman Bharat Pradhan Mantri - Jan Arogya Yojana (AB PM-JAY) is the largest publicly funded health assurance scheme in the world which provides health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization. Currently, 55 Crore individuals corresponding to 12 Crore families are covered under the scheme.

Status update:

Ayushman Arogya Mandir (AAM)

The first Ayushman Arogya Mandir / AB-

HWC was inaugurated by the Hon'ble Prime Minister on 14th April, 2018 in Bijapur District of Chhattisgarh. The roll out plan for AAMs is as follows – As updated by the States/UTs in AAM portal, a total of 1,72,148 Ayushman Arogya Mandirs have been established and operationalized as on 31.03.2024. More than 258.88 crore footfall has been recorded on these AAMs as on 31.03.2024. As on 31st March, 2024, 63.65 crore screenings for Hypertension, 55.45 crore for Diabetes, 37.35 crore for Oral Cancer, 16.77 crore for Breast Cancer, 11.23 crore for Cervical Cancer have been carried out at AAMs. Primary healthcare team at the Sub Health Centre level AAMs is being led by Community Health Officers (CHO)/ Mid-Level Health Care Providers (MLHP) who is a B.Sc./ GNM Nurse or an Ayurveda Practitioner trained in primary care and public health skills and certified in a six months Certificate Programme in Community Health, other members of the team being, Multi- Purpose Workers (Male and Female) and Accredited Social Health Activists (ASHAs). As of March 31st March, 2024, a total of 1,38,257 CHOs are posted in Ayushman Arogya Mandirs. (Source-AAM portal).

Since the screening, prevention and management of chronic illnesses including NCDs, TB and Leprosy have been introduced at AAMs, training and skill upgradation of the primary health team in all the functional AAMs on NCDs and use of IT application is being done.

To promote wellness and healthy life style, Orientation of the public on wellness activities for lifestyle modification like increased physical activity (cyclathons and marathons), eating RIGHT and SAFE, cessation of Tobacco and drugs, laughter clubs, open gyms, etc., is being done. Besides these, Yoga Session, Zumba and Meditation, (with local yoga instructors for the people) are being conducted at these centres on regular basis. Through Annual Health Calendar, planned activities at these centres on the health condition of the day are resulting in increased awareness and preventive measures to be adopted by the public. About 3.22 crore Wellness Sessions,

including Yoga, have been conducted at AAMs as on 31st March, 2024.

Tele-consultations are being conducted through Ayushman Arogya Mandirs, to increase the access of specialist services to the needy patients by hub and spoke model under e-Sanjeevani Tele consultation platform. It is India's largest government-owned telemedicine system, which has made a significant contribution in bridging the gap between the community and healthcare system. As on 31st March 2024, around 21.60 crore Tele-consultations have been provided through functional AAMs through 1,19,029 Spokes & 15,074 Hubs across the country. Expanded Service Packages planned to be provided at functional AAMs are as follows:

- Care in Pregnancy and Child Birth.
- Neonatal and Infant health care services.
- Childhood and Adolescent health care services.
- Family planning, contraceptive services and other reproductive health care services
- Management of communicable diseases: National Health programmes
- General out-patient care for acute simple illnesses and minor ailments
- Screening, prevention, control and management of non-communicable diseases and chronic communicable diseases like tuberculosis and leprosy
- Basic oral health care
- Screening and basic management of mental Health ailments
- Care for common ophthalmic and ENT problem
- Elderly and palliative health care services
- Emergency medical services including burns and trauma.

Expected Outcomes

- Increasing the trust of the people on the service provision by public healthcare facilities through health system strengthening and improvement
- Availability of assured healthcare services to ensure continuum of care.
- Reduction in out-of-pocket expenditure of the common people
- Increased awareness among the people about health
- Preventive and promotive healthcare
- Benefits of healthy lifestyle including YOGA, and Eat Right & Eat SAFE etc.

• Enabling environment to increase the health seeking behavior of the poor people
Ayushman Bhav campaign

Ayushman Bhav Campaign was launched by Hon'ble President of India on 13th September, 2023. Ayushman Bhav Campaign is envisaged to saturate selected health care services in every village/ town in line with the commitment of Hon'ble Prime Minister to ensure reach to the last mile and enable access to health care services to everyone in the society.

'Ayushman Bhav' campaign involves a set of interventions that include following:

(i) 'Ayushman - Apke Dwar 3.0' includes achieving Ayushman card saturation at the individual level, printing and distributing Ayushman cards to Field Level Workers for further delivery, launching a nationwide Ayushman card delivery campaign. The campaign involves collaboration with health, Panchayati Raj, and rural development departments, seeking the support of ASHA workers, Front Line Workers (FLWs), and Self- Help Groups.

Key activities includes: preparing state-wise beneficiary databases setting saturation targets publishing beneficiary names engaging FLWs and Fair Price Shops (FPS) for card creation, and conducting massive IEC campaigns. (ii) AB-HWCs Health Melas- organized at Ayushman Arogya Mandir (erstwhile AB-HWCs) from September 17, 2023, serve as platforms for health services, awareness, and community engagement.

The objectives include early diagnosis, building awareness, bridging gaps in Health IDs issuance, population-based screenings, routine immunization, and follow-up for PM-JAY beneficiaries.

(iii) Weekly Health Melas are also Organize by Medical Colleges at the Community health centres (CHCs), in rotation, to ensure increased access to specialist services like Obstetrics and Gynaecology, Paediatrics, Surgery, ENT, Eye and Psychiatric etc. at every block to ensure continuum of care.

In Ayushman Bhav Campaign, till 31.03.2024, more than 9.5 crores Ayushman Cards and 13.48 crores ABHA IDs have been created. Total 24.66 lakhs

Ayushman Melas have been organized at Ayushman Arogya Mandir with more than 17.84 crores footfall. In this Ayushman Arogya Mandir melas, over 34.39 crore screenings were conducted for TB, hypertension, diabetes, oral cancer, breast cancer, cervical cancer, and cataract.

Additionally, so far over 11.69 crore and 9.28 crore people benefited from free drugs and diagnostic services respectively. Health Calendar for important Days at AAMs is as below:

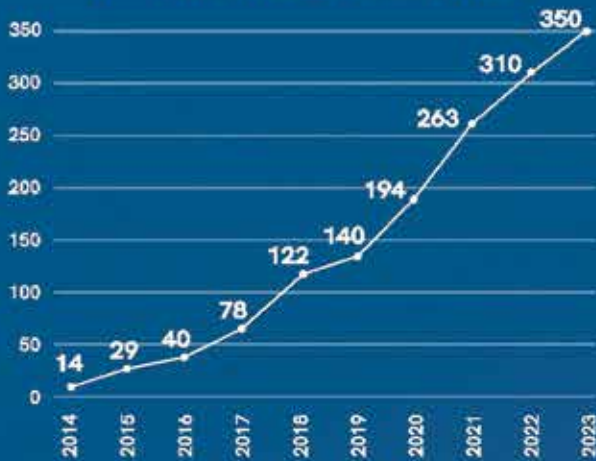
Sl. No.	Date	Day
1	12th January	National Youth Day
2	30th January	Anti-Leprosy Day
3	4th February	World Cancer Day
4	10th February	National Deworming Day
5	11th February	International Epilepsy Day
6	8th March	International Women's Day
7	10th March	National GDM Awareness Day
8	24th March	World Tuberculosis Day
9	7th April	World Health Day
10	11th April	National Safe Motherhood Day
11	14th April	Ayushman Arogya Mandir Day (erstwhile AB-HWC Day)
12	Last week of April i.e. from April 24th	World Immunization Week
13	5th May	International Midwives' Day
14	12th May	International Nurses Day
15	28th May	Menstrual Hygiene Day

Sl.No.	Date	Day
16	28th May to 8th June	Intensified Diarrhea Control Fortnight
17	31st May	World No Tobacco Day
18	14th June	World Blood Donor Day
19	21st June	International YOGA Day
20	6th June	International Day Against Drug Abuse
21	1st July	Doctors Day
22	11th July	World Population Day
23	28th July	World Hepatitis Day
24	01-07 August	World Breast Feeding Day/Week
25	10th August	National Deworming Day
26	15th August	Independence Day
27	01-07 September	National Nutrition Week
28	23rd September	Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana Day
29	27th September	Ayushman Bharat Digital Mission Day
30	29th September	World Heart Day
31	1st October	World Elderly Day
32	10th October	World Mental Health Day
33	25th October	PM-Ayushman Bharat Health Infrastructure Mission Day

Sl.NO	Date	Day
34	7th November	National Cancer Awareness Day
35	12th November	World Pneumonia Day
36	14th November	Children's Day & World Diabetes Day
37	15-21 November	Newborn Week
38	17th November	World Prematurity Day
39	25th November	International Day for the Elimination of Violence against women
40	1st December	World AIDS Day
41	10th December	Human Rights Day
42	12th December	Universal Health Coverage Day

13% GROWTH OF MEMBER COMPANIES

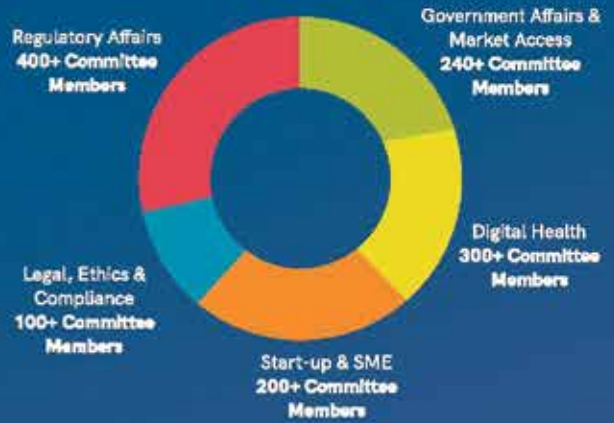
Number of member companies grew from 310 in 2022 to 350 in 2023



Number of Member Companies

OVER 1,240+ COMMITTEE MEMBERS

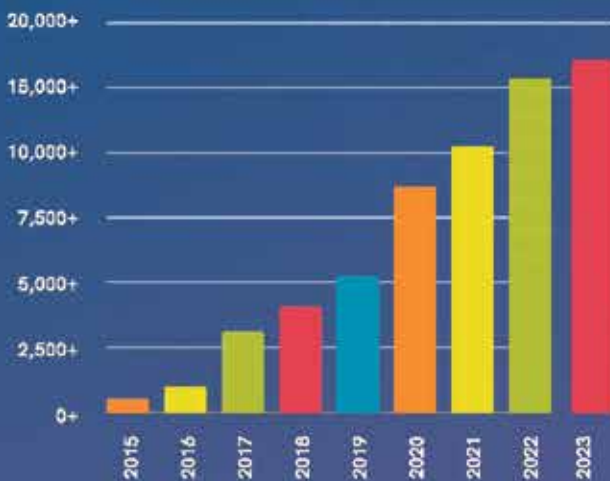
from 5 committees in 2023



Number of Committee Members

10% GROWTH OF SOCIAL MEDIA FOLLOWERS

Number of social media followers increased from 16,000+ in 2022 to 17,681 in 2023



Number of Social Media Followers

MedTech Forum Delegates

1,350 in 2022 VS 1,458 in 2023

Networking Opportunities

Hosted **1,692 members** in 2023 to get together as an industry to collaborate and share best practices



3,150 DELEGATES

Events, Workshops and Conferences

10 POSITION PAPERS

Published across 4 committees

Organisation & Committees

Board of Directors



Secretariat Team



Committees

**Government Affairs
& Market Access**

240+ Committee
Members



Digital Health

300+ Committee
Members



Regulatory Affairs

400+ Committee
Members



**Legal, Ethics &
Compliance**

130+ Committee
Members



Start-Up & SME

200+ Committee
Members



National Sickle Cell Anaemia Elimination Mission

To eliminate sickle cell disease, Sickle Cell Anaemia Elimination Mission has been launched by Hon'ble Prime Minister from Madhya Pradesh on 1st July, 2023 with mission of targeted screening of 7 crore people till year 2025-26 in affected 278 districts of tribal areas and counselling through collaborative efforts of central ministries and state governments.

Under the national Sickle Cell Anaemia Elimination Mission, a total of 2,61,38,391 persons in 17 identified states has been screened and a total of 1,04,51,371 Sickle cell cards had been distributed till 31.03.2024. Human Resources: Health care Service delivery requires intensive human resources inputs. There has been an enormous shortage of human resources in the public health care sector in the country. NHM has attempted to fill the gaps in human resources by providing nearly 3.95 lakh additional health human resources to the States including 1,31,210 CHOs, 16,088

GDMOs, 5,151 Specialists, 78,954 Staff Nurses, 88,879 ANMs, 57,194 Paramedics, 497 Public Health Managers and 17,995 Programme Management staffs etc. on contractual basis, as on 31st December 2023. Apart from providing support for health human resource, NHM has also focused on multi skilling of human resources.

NHM also focused on multi-skilling of doctors at strategically located facilities identified by the States e.g. MBBS doctors are trained in Emergency Obstetric Care (EmOC), Life Saving Anaesthesia Skills (LSAS) and Laparoscopic Surgery.

Similarly, due importance is given to capacity building of nursing staff and auxiliary workers such as ANMs. NRHM also support co-location of AYUSH services in health facilities such as PHCs, CHCs and DHs. As on 31st December, 2023, a total of 27,421 AYUSH doctors and 4,581 AYUSH paramedics have been deployed in the States with NRHM funding support.

4) Mainstreaming of AYUSH:

Mainstreaming of AYUSH has been taken up by allocating AYUSH services in 6,612 PHCs, 3,035 CHCs, 469 DHs, 2,916 health

facilities above SC but below block level and 190 health facilities other than CHC at or above block level but below district level as on 31.12.2023.

5) Infrastructure: Upto 33% of NHM funds in high focus states can be used for infrastructure development.

During the FY 2023-24 support is provided for construction of 8,702 units among the states / UT's. There are 1,575 ongoing works, 2,075 new construction works consisting of DH, SDH, CHC, PHC, SC and 5,052 other repairs / renovation / upgradation / strengthening works among the 8,702 units for which support is provided.

In the ongoing works of 1,575 units DH (143 nos), SDH (38 nos), CHC (643 nos), PHC (239 nos) and SC (512 nos) are supported.

Further, among the new construction proposals of 2,075 units, DH (28 nos), SDH (330 nos), CHC (132 nos), PHC (333 nos) and SC (1,252 nos) are approved in the FY 2023-24 (up to 31.03.2024). The remaining 5,052 works are miscellaneous works such as repairs/ renovation of existing facilities, up gradation of existing facilities to the prescribed norms of IPHS. Apart from the above financial assistance towards rent of the units, central heating systems, construction/ maintenance of hatcheries, pits, equipment etc. were also supported.

6) National Ambulance Services (NAS):

National Ambulance Services (NAS): As on date, 34 States/UTs have facilities where people can Dial 108 or 102 telephone numbers to call an ambulance. Dial 108 is predominantly an emergency response system, primarily designed to attend to patients of critical care, trauma and accident victims etc. Dial 102 services essentially consist of basic patient transport aimed to cater to the needs of pregnant women and children though other categories are also taking benefit and are not excluded. Janani Shishu Suraksha Karyakram (JSSK) entitlements e.g., free transport from home to facility, inter- facility transfer in case of referral and drop back for mother and children are the key focus of 102 services.

This service can be accessed through a toll-free call to a dedicated call center. As on 31st December, 2023, 3,031 ALS (Advanced Life Support) ambulances,

15,250 (Basic Life Support) ambulances, 4,343 PTV (Patient Transport Vehicle), 17 Boat Ambulances and 81 Bike Emergency Response Service Vehicles are Supported Under NHM, besides 7,319 empanelled vehicles for transportation of Patients, particularly pregnant women and sick infants from home to Public health facilities.

7) National Mobile Medical Units(N-MMUs):

Support to Mobile Medical Units (MMUs) under NHM, now encompassing both NRHM and NUHM, is a key strategy to facilitate access to public health care, particularly for people living in remote, difficult, under-served and unreached areas.

As on 31st December 2023, States/UTs have 1,433 mobile medical units which include mobile medical units, mobile health units, mobile medical/health vans, boat clinics, eye vans/mobile ophthalmic units, and dental vans under NRHM and NUHM.

8) Free Drugs Services Initiative: To ensure availability of essential drugs and reduce the Out-of-Pocket Expenditure (OOPE) of the patients visiting the public health facilities, Government has rolled out the Free Drugs Service Initiative (FDSI) under NHM.

Under this, financial support is provided to States / UTs for provision of free essential medicines in public health facilities based on the requirements posted by them in their Programme Implementation Plans (PIPs) within their overall resource envelope.

Support under the scheme is available for Procurement of drugs and strengthening / setting up robust systems of procurement, Quality Assurance, Supply chain management and warehousing, Prescription audit, grievance redressal, dissemination of Standard Treatment Guidelines and Establishment of IT enabled platform DVDMS (Drugs & Vaccine Distribution Management System) for monitoring the real status of procurement and availability of essential medicines.

The Ministry has recommended facilitywise Essential Medicines List (EML) to be made available at the public healthcare facilities:

Sub Health Centre Health & Wellness Centre (SHC- HWCs) - 106 Primary Health Centre Health & Wellness Centre (PHC- HWCs) 172 Community Health Center (CHCs)- 300 Sub-District Hospital - 318 District Hospital (DHs) - 381 However, the States/ UTs have the flexibility to add more medicines and Essential Drugs List (EDL) of States vary from State to State.

Quality of drugs procured, under Free Drugs Service Initiative, is ensured through the operational guidelines of the initiative that -All drugs must be sourced from Good Manufacturing Practices (GMP) compliant manufacturers through robust procurement mechanism.

Post supply testing of every batch before distributing to the health facilities.

9) Free Diagnostics Services Initiative:

The Ministry of Health and Family Welfare (MoHFW), Government of India launched the National Free Diagnostic Service Initiative in 2015 with the aim to provide accessible and affordable pathological and radiological diagnostics services closer to the community which in turn reduces the Out-of-Pocket Expenditure (OOPE) and achieve Universal Health Coverage (UHC). A minimum set of essential diagnostic tests has been recommended as per the Essential Diagnostic List at each level of public health facility.

As per the FDSI guidelines an expanded range of diagnostics at all levels of public health facilities (14 tests at Sub-Health Centres (SHCs), 63 tests at Primary Health Centres (PHCs), 97 tests at Community Health Centres (CHCs), 111 tests at Sub-District Hospitals (SDHs) and 134 tests at District Hospitals (DHs) are recommended. Under NHM, the 'Free Diagnostic Service Initiative' is delivered through In-house, Public Private Partnership (PPP) and Mixed mode by the States/UTs in the country. The FDSI Guideline also supports CT scans and their tele-reporting, teleradiology for reporting of X-ray and transportation in a hub and spoke model.

Current Status:

1. As on 31st March 2024, the free diagnostic laboratory service is operational in 36 States /UTs (12 States/UTs through mixed mode (PPP as well as in house mode) of service delivery(Arunachal Pradesh, Assam, Delhi,

Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Manipur, Odisha, Punjab, Tripura, and Uttarakhand) and 24 States/UTs through In-house mode of service delivery (Andhra Pradesh, A&N Island, Bihar, Chandigarh, Chhattisgarh, D&N Haveli-Daman & Diu, Goa, Gujarat, Haryana, Jammu & Kashmir, Karnataka, Kerala, Ladakh, Lakshadweep, Meghalaya, Mizoram, Nagaland, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal).

2. The CT scan services are operational in 31 States/UTs (20 States/UTs through PPP mode (Andhra Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Sikkim, Tripura, Uttarakhand, Uttar Pradesh, West Bengal) and 11 States/UTs through In-house mode (A&N island, Arunachal Pradesh, D&N Haveli-Daman & Diu, Goa, Jammu & Kashmir, Lakshadweep, Kerala, Mizoram, Puducherry, Tamil Nadu, and Telangana).

3. Tele-radiology service is operational in 11 States/UTs (Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Rajasthan, Uttarakhand, Uttar Pradesh, Tripura, and West Bengal).

Biomedical Equipment Maintenance and Management Programme: The Ministry of Health & Family Welfare launched the Biomedical Equipment Management & Maintenance Program (BMMP) in the year 2015 for comprehensive maintenance of medical equipment in public health facilities. The program ensures optimal upkeep time and maximum availability of equipment through an IT-enabled complaint management system.

The implementation of BMMP has helped in providing assured quality diagnostics service.

As on 31st March 2024, BMMP is operating in 33 States / UTs, In 22 States/ UTs, it is implemented in PPP mode (Andhra Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Goa, Jammu & Kashmir, Kerala, Ladakh, Maharashtra, Madhya Pradesh, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand, and West Ben-

gal) and through In-House mode in 11 States/UTs (Andaman & Nicobar Island, Chandigarh, Delhi, D&N Haveli-Daman & Diu, Gujarat, Haryana, Karnataka, Lakshadweep, Meghalaya, Telangana, and Tamil Nadu).

The States and Union Territories were approved budget as per RoP under the Biomedical Equipment Maintenance and Management Program.

Community Participation:

Accredited Social Health Workers:

The ASHA program is a key component of the community processes element of National Health Mission (NHM), intended to achieve the goal of increasing community engagement with the health system. The programme launched initially in 18 high focus States and tribal areas in 2006 and later expanded to whole country in 2009, is a key component of the NHM. ASHAs are honorary community health volunteers who entitled to task/activity based incentives for a varied set of activities related to maternal and child health, communicable diseases and non communicable diseases for community level health interventions.

Details of incentives which provide to ASHA is as under:

ASHAs receive a monthly incentive of Rs. 2000 /month for routine and recurring activities from the Central Government. Additionally, ASHAs are provided with performance-based incentives for a varied set of activities under various National Health Programmes.

Further, States/UTs in their Programme Implementation Plans (PIPs) have also been given flexibility to provide a range of monetary incentives to the ASHAs.

There are 10.23 lakhs ASHAs selected across the country in rural and urban areas under the NHM who act as a link between the community and the public health system, as on 31st December, 2023

Over last 18 years, ASHAs have been widely acknowledged for their substantial contribution in improving access to care for community in areas ranging from RMNCHA to Communicable Diseases and more recently to non-communicable diseases. Subsequently, with the introduction of Ayushman Arogya Mandir,

ASHAs role is expanded to deliver the Comprehensive primary healthcare. ASHA Certification: As per NIOS, 31st December 2023, 93112 ASHA and ASHA Facilitators have been certified.

b. Rogi Kalyan Samiti (Patient Welfare Committee) / Hospital Management Society is a simple yet effective management structure. This committee is a registered society that acts as a group of trustees for the hospitals to manage the affairs of the hospital. Financial assistance is provided to these Committee through untied fund to undertake activities for patient welfare. As on 31st December, 2023, 34,787 Rogi Kalyan Samitis (RKS) have been set up involving the community members in almost all District Hospitals, Sub-divisional Hospitals, Community Health Centres and PHCs.

VHSNCs: At the Village Level, the Village Health, Sanitation and Nutrition Committee (VHSNC) monitors the services provided by the Anganwadi Worker, the ASHA and the sub-centre. These Committees are envisaged to function under the ambit of the Panchayati Raj Institution with adequate representation from women and weaker sections of the society. The VHSNC acts as a subcommittee or statutory body of the Gram Panchayat. The same institutional mechanism is also mandated in urban areas. VHSNCs are provided an Untied fund of Rs 10,000 on annual basis which are topped up based on expenditure of previous year. More than 5.59 lakh VHSNC have been set up across the country till 31st December, 2023.

11) 24 x 7 Services and First Referral facilities To ensure service provision for maternal and child health, 24x7 services at the PHCs have been made available.

As on 31st December, 2023, 12,346 PHCs have been made 24x7 PHCs and 3,086 facilities (including 680 DH, 863 SDH and 1543 CHCs & other level) have been operationalized as First Referral Units (FRUs). Besides, NHM envisages provision of assured and high-quality maternal and child health services to be delivered with dignity and care at public health institutions. GoI launched MCH wings to facilitate assured admission for institutional delivery of all pregnant women.

These wings are equipped with obstetric HDUs, ICUs, maternity OT, Labor rooms ensuring respectful maternity care etc. for managing high-risk pregnancies and those requiring C- sections. These centers also have skill labs for training of nurses and doctors for providing high quality and skilled maternity care.

12) Mera-Aspatal (My Hospital) Initiative:

The government's Mera Aspataal initiative empowers patients to provide feedback on their experiences in public healthcare facilities through a simple, multi-lingual application. It works through multiple communication channels, including Short Message Service (SMS), Outbound Dialling (OBD), a mobile application, and a web portal.

With over 11,000 integrated health facilities across the nation, this initiative allows patients to voice their opinions, which are then analysed to improve healthcare services.

13) SSS (Swachh Swasth Sarvatra): Launched

in 2016, SSS is a collaborative effort between the Ministry of Health & Family Welfare and the Ministry of Jal Shakti to enhance health outcomes through improved sanitation and promoting healthy lifestyles. Initially focused on rural areas, it has been expanded to urban regions in 2019 as well.

14) Kayakalp: Initiated in 2015, Kayakalp aims to promote cleanliness, hygiene, and infection control practices in public health facilities. It has seen significant growth and has expanded to include Ayushman Arogya Mandir – Sub Centres. The scheme has garnered trust among beneficiaries and has received widespread participation from states and UTs.

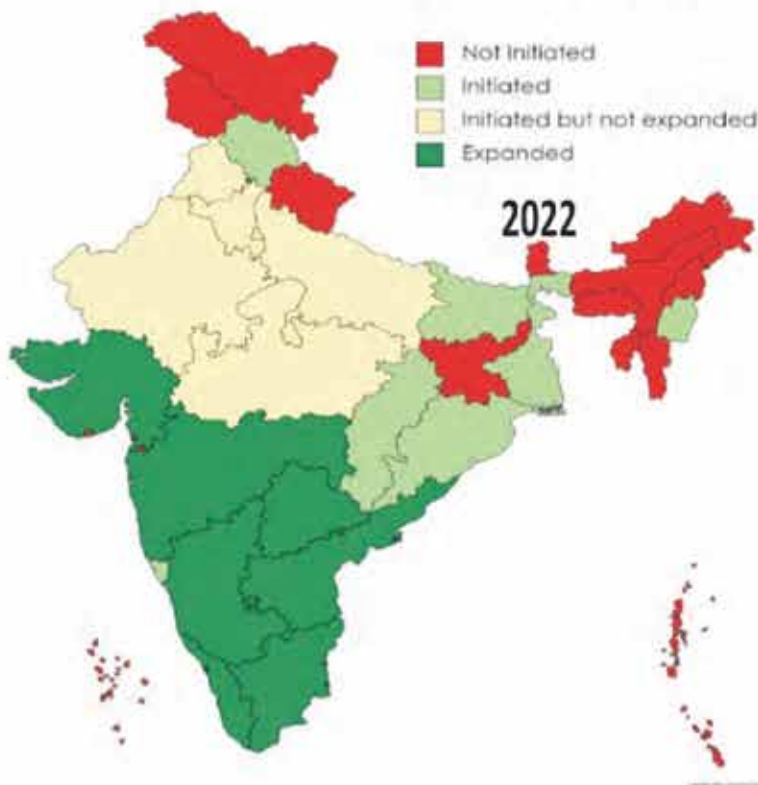
The number of participating health facilities under the Kayakalp has increased from 750 health facilities in Year 2015-16 to more than 73,000 facilities in Year 2023-24. In 2023-24, 186 DHs, 161 SDHs, 747 CHCs, 2985 PHCs, 467 UPHCs, 13 UCHCs, 4167 AAM-SCs have been recognized under Kayakalp in 20 States/UTs.

15) National Quality Assurance Standards (NQAS) Implementation and related

activities: National Quality Assurance Standards were released with Operational

(www.notto.abdm.gov.in)

DDOT - Status



NO DDOT ACTIVITY

- North East States except Manipur
- J&K
- Ladakh
- Uttarakhand
- Jharkhand
- Dadra and Nagar Haveli and Daman and Diu
- Andaman and Nicobar Islands
- Lakshadweep

STATE with highest organ donation rate
Telangana 5.14

guidelines for Quality Assurance in public health facilities. NQAS are pro-public standards and are exclusive from the existing other Quality Standards in the country. By knowing the advantages & drawbacks of public health facilities, these standards lay more emphasis on improving the processes in the health facilities. These standards are linked with well-defined assessment tools and all gaps are traversed through continual Quality improvement methods and tools. i.e., PDCA etc.

National Quality Assurance Standards are updated as per the revised program guidelines and Government of India mandates. NQAS are aligned with the global benchmarks and are recognised Nationally and internationally by IRDA, NHA and ISQua (International Society for Quality in Healthcare) respectively.

National Health Authority has also approved 15% incentive over and above the base package rate (Gold Category) for the NQAS certified health facilities. As of 31st March 2024, 7998 healthcare facilities are NQAS certified.

a) LaQshya Certification: LaQshya is a Quality improvement initiative, launched in 2017 by MoHFW to accelerate the efforts towards the reduction of preventable maternal mortality and morbidity by aiming at the improvement in Quality of Care during the delivery and immediate post-partum period. As of 31st March 2024, 951(LR) and 709(MOT) are Quality certified under LaQshya.

b) MusQan (A child-friendly initiative)

The Ministry of Health Welfare is dedicated to ensuring a child-friendly environment in public health institutions, and the ministry has been working to achieve this goal by strengthening paediatric wards, SNCUs, NRCs among other things. As of 31st March 2024, 105 public healthcare facilities are Quality certified under MusQan.

Focus on Quality under NHM during FY 2022-23

SaQushal: (Safety and Quality-Self Assessment Toolkit for Health Facilities) Launched in 2022, SaQushal is a self assessment toolkit for healthcare facilities to enhance patient safety practices, initially targeting District hospital-level facilities. These initiatives collectively

signify the government's commitment to improving healthcare quality across the nation.

Viksit Bharat Sankalp Yatra India is a country that is constantly progressing and growing with 1.4 billion population both in rural and urban areas. Since 2014, the Government of India has been committed to a model of development that ensures no one is left behind, "Sabka Sath Sabka Vikas, Sabka Vishwas, Sabka Prayaas". To celebrate last 9 years' achievements, in various fields across various schemes Government of India is conducting a nationwide awareness campaign named as "Viksit Bharat Sankalp Yatra".

The campaign is designed to build on accomplishments of Government of India and usher in an era of collective participation where rural and urban communities can actively engage in the nation's development. A 60-days long Yatra is being organised covering all districts, Gram Panchayat and urban locations across the country from 3rd week of November 2023 to January 2024.

The major objectives of Yatra include reaching the unreached especially the vulnerable population, dissemination of information about the schemes through Mobile vans travelling across the country, Enrolment of potential beneficiaries under various schemes and learning from citizens through interaction with beneficiaries of government schemes by personal stories/experiences sharing.

Ministry of Health and Family Welfare (MoHFW), has identified Schemes / programs to be showcased during the course of the Yatra such as Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana as the Flagship Scheme of MoHFW and national TB Elimination Programme for the campaign with additional focus on Sickle Cell Anaemia Elimination Mission in Tribal Area. Further, Health Camps are also being organised at the places of halt of the mobile van where in Screening and Referral for Tuberculosis, Non Communicable Diseases and Sickle Cell Disease, Nikshay Mitra Registration and Consent under Nikshay Mitra, Seeding of Bank Accounts for Nikshay Poshan Yojna, Ayushman Card creation and Physical Card

distribution are conducted.

MoHFW has constituted a Central Coordination Committee along with senior officials being nominated as State Nodal Officers to oversee the activities of Viksit Bharat Sankalp Yatra. Also, 169 District Health Nodal Officers from DGHS, Regional Offices of Health and Family Welfare (RoHFW), National Centre for Disease Control (NCDC) have been given a checklist to ensure that requisite preparations have taken place and have also been requested to visit the district at least one day prior to the start of Yatra. Control Room has also been established to support States. Sequence of trainings and meetings have been conducted with the States to orient and monitor the progress on regular basis. Data Entry Microsite has been developed by MoHFW to capture the data real time.

Till 29th Feb, 2024 information pertaining to 2,38,006 Gram Panchayats have been received with the total footfall of more than 7,34,08,564 people. 2,79,74,148 Ayushman Cards have been created and 51,05,148 Ayushman cards have been physically distributed. 3,91,33,509 people have been screened for Tuberculosis, out of which more than 11,90,526 were referred to higher Public Health Facilities. 43,00,584 people have been screened for Sickle Cell Disease, out of which 84,048 were found to be positive and referred to higher Public Health Facilities. Around 2,81,83,990 people were screened for Hypertension and 2,69,33,141 people screened for Diabetes. More than 20,61,409 people were suspected to be positive for Hypertension and more than 14,83,717 were suspected to be positive for Diabetes and more than 31,04,665 people were referred to higher Public Health Facilities.

National Health System Resource Center (NHSRC): National Health System Resource Centre (NHSRC) was set up in 2007, to provide technical support to the Ministry of Health & Family Welfare on policy issues and development of strategy besides taking up capacity building of States. The NHSRC functions under the guidance of a Governing Board headed by the Secretary, Ministry of Health and Family Welfare, Government of India and an

Executive Committee headed by the Additional Secretary & Mission Director, National Health Mission (NHM), Ministry of Health & Family Welfare. The Regional Resource Centre, North East (RRC-NE), a Branch of the NHSRC, serves as the technical support organization for the States in the North East.

15th FC Recommendations on Health Grants through local Governments The Fifteenth Finance Commission (FC-XV) constituted by the President on November 2017 was, inter-alia, mandated to recommend measures needed to augment the Consolidated Funds of the States, for the period spanning FY 2020-25. The FC- XV had submitted two reports, one for FY 2020-21 and the Final Report for FY 2021-22 to 2025-26.

The Commission has recommended that health spending by States should be increased to more than 8 per cent of their budget by 2022. The Commission has also recommended that Primary healthcare expenditure should be two-thirds of the total health expenditure by 2022 and that Centrally sponsored schemes (CSS) in health should be flexible enough to allow states to adapt and innovate, with the focus shifting from inputs to outcomes.

The Commission recommended grants for the health sector as follows:

(i) grants aggregating to Rs.70,051 Crores through local governments .

(ii) sectoral grants aggregating to Rs.31,755 Crores to States. FC-XV had also recommended State- specific grants for health amounting to Rs.4,800 Crore. The total grants-in-aid support to the health sector over the award period works out to be Rs.1,06,606 Crore.

The Union Government on 30-01-2021 vide Explanatory Memorandum as to the Action Taken on the Recommendations made by the Fifteenth Finance Commission in its Final Report for FY 2021-22 to 2025-26 inter-alia accepted the recommendations of the FC-XV only in respect of the Local Bodies. On the recommendations for the sectoral grants of various Ministries including of Ministry of Health & Family Welfare, the Union Government had clarified that due consideration to sectors identified by the Commission will be given

while formulating and implementing existing and new Centrally Sponsored and Central Sector Schemes.

Accordingly, the accepted recommendation of FC- XV through Health Grants through Local Governments (grants of Rs.70,051 Crore for FY 2021-22 to 2025-26) to strengthen the healthcare system at the primary healthcare level are provided for the following: Urban Health and Wellness Centres (HWCs), building-less Sub Centers PHCs,CHCs,Block Level Public Health Units, support for diagnostic infrastructure for the primary healthcare activities and conversion of rural Sub Centres and PHCs to HWCs.

Components of FC-XV Recommendations, involving Rural Local Bodies As per FC-XV Recommendations, Rs.43,928 Crore has been allocated for healthcare facilities in rural areas to be coordinated by Rural Local Bodies (RLBs).

Four key components approved under the grants involving RLBs are:

a. Support for diagnostic infrastructure to the primary healthcare facilities: FC- XV provides support for diagnostic infrastructure in Sub Health Centres (SCHs) and Primary Health Centres (PHCs) under the vision of comprehensive primary health care. Diagnostic services are critical for the delivery of health services, and these grants are intended to fully equip the primary health care facility so that they can provide some necessary diagnostic services.

b. Block Level Public Health Units: Block Public Health Units (BPHU) would integrate the functions of service delivery, public health action, strengthened laboratory services for disease surveillance, diagnosis and public health and serve as the hub for health- related reporting. The BPHUs will also improve decentralised planning and the preparation of block plans that feed into district plans.

In addition, they will improve accountability for health outcomes. Given that the block health facility is co-terminus with the Block Panchayat /Panchayat Samiti/ Taluka Panchayat, this has the potential to facilitate convergence with the panchayati raj institutions and the child development project officer of the Integrated Child

Development Scheme (ICDS) programme FC-XV proposes to provide support to BPHUs in all the 28 States.

Building-less Sub Centres, PHCs, CHCs:

An assessment of infrastructure gaps in rural PHCs/Sub centres based on Rural Health Statistics shows that number PHCs and SHCs do not have the necessary infrastructure to meet the targets of the National Health Policy, 2017.

The Commission proposes to provide support for necessary infrastructure for Sub Health Centre - HWCs and Primary Health Centre - HWCs in rural areas in close collaboration with rural local bodies.

d. Conversion of Rural PHCs and Sub Centres into Health and Wellness Centre (now known Ayushman Arogya Mandir (AAM) : The Union Government has envisaged creation of 1,50,000 HWCs (AAM) by transforming existing SHCs and PHCs as the basic pillar of Ayushman Bharat to deliver comprehensive primary health care. So far, 1,63,692 Ayushman Arogya Mandir (AAM) have been operationalized which has already crossed the target.

Components of FC-XV involving Urban Local Bodies

Rs.26,123 Crores has been allocated for healthcare facilities in urban areas to be coordinated by Urban Local Bodies (ULBs). Two key components approved under the grant involving ULBs are:

i. Urban Health and Wellness Centres: A paradigm shift in urban primary health care is envisaged, based on the learning from the management of the COVID-19 pandemic, which has affected urban areas disproportionately. As part of this shift, Universal Comprehensive Primary Health Care is planned to be provided through urban Health and Wellness Centres (urban-HWCs) and polyclinics. Such urban HWCs would enable decentralised delivery of primary health care to smaller populations, thereby increases the reach to cover the vulnerable and marginalised. It is envisaged that the urban HWCs would create a mechanism for representatives of the Medical Administrative Staff and Resident Welfare Associations to disseminate information on public health issues at least once a month. FC-XV proposes to provide

support to BPHUs in all the 28 States.

C. Building-less Sub Centres, PHCs, CHCs:

An assessment of infrastructure gaps in rural PHCs/Sub centres based on Rural Health Statistics shows that number PHCs and SHCs do not have the necessary infrastructure to meet the targets of the National Health Policy, 2017.

The Commission proposes to provide support for necessary infrastructure for Sub Health Centre - HWCs and Primary Health Centre - HWCs in rural areas in close

collaboration with rural local bodies.

D. Conversion of Rural PHCs and Sub

Centres into Health and Wellness Centre (now known Ayushman Arogya Mandir (AAM)) : The Union Government has envisaged creation of 1,50,000 HWCs (AAM) by transforming existing SHCs and PHCs as the basic pillar of Ayushman Bharat to deliver comprehensive primary health care. So far, 1,63,692 Ayushman Arogya Mandir (AAM) have been operationalized which has already crossed the target.

S NI	Total Health Grants	2021-22	2022-23	2023-24	2024-25	2025-26
1	Building-less Sub Centres PHCs, CHCs	1350	1350	1417	1488	1562
2	Block level Public Health Units	994	994	1044	1096	1151
3	Support for diagnostic in- frastructure to the prima- ry healthcare facilities	3084	3084	3238	3400	3571
3.a	Sub - Centres	1457	1457	1530	1607	1687
3.b	PHCs	1627	1627	1708	1793	1884
4	Conversion of rural PHCs and Sub Centres into Health and Wellness Centre	2845	2845	2986	3136	3293
	Total Grants for prima- ry health sector in rural areas	8273	8273	8685	9120	9577

Components of FC-XV involving Urban Local Bodies Rs.26,123 Crores has been allocated for healthcare facilities in urban areas to be coordinated by Urban Local Bodies (ULBs). Two key components approved under the grant involving ULBs are:

i. Urban Health and Wellness Centres: A paradigm shift in urban primary health care is envisaged, based on the learning from the management of the COVID-19 pandemic, which has affected urban areas disproportionately. As part of this

shift, Universal Comprehensive Primary Health Care is planned to be provided through urban Health and Wellness Centres (urban-HWCs) and polyclinics. Such urban HWCs would enable decentralised delivery of primary health care to smaller populations, thereby increasing the reach to cover the vulnerable and marginalised. It is envisaged that the urban HWCs would create a mechanism for representatives of the Medical Administrative Staff and Resident Welfare Associations to

disseminate information on public health issues at least once a month. FC-XV proposes to provide support for setting up urban HWCs in close collaboration with urban local bodies.

ii. Support for diagnostic infrastructure to the primary healthcare facilities: FC-XV provides support for diagnostic infrastructure in urban PHCs under the vision of comprehensive primary health

care.

Diagnostic services are critical for the delivery of health services, and these grants are intended to fully equip the primary health care facilities so that they can provide some necessary diagnostic services.

Below Table contains year wise break up for the two components:

Sl. No.	Total Health Grants	2021-22	2022-23	2023-24	2024-25	2025-26
1	Support for diagnostic infrastructure to the primary health care facilities – Urban PHCs	394	394	394	435	457
2	Urban Health and Wellness Centres (HWCs)	4525	4525	4751	4989	5238
	Total Grants for primary health sector in urban areas	4919	4919	5166	5424	5695

As mandated by FC-XV, a National level Committee under the Chairpersonship of Secretary (H&FW) has been constituted. Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM):

PM-ABHIM was launched by Hon'ble Prime Minister on 25th October 2021, with an outlay of about Rs. 64,180 Cr over till FY 25-26. The budget outlay envisaged in the scheme is in addition to the National Health Mission. This is the largest pan-India scheme for strengthening health-care infrastructure across the country.

Objective of the Scheme:

The measures under the scheme focus on developing capacities of health systems and institutions across the continuum of care at all levels viz. primary, secondary and tertiary and on preparing health systems in responding effectively to the current and future pandemics/ disasters. The PM-ABHIM targets to build an IT enabled disease surveillance system by developing a network of surveillance laboratories at block, district, regional and national levels, in Metropolitan areas & strengthening health units at the Points of Entry, for effectively detect, investigate, prevent, and combating Public Health Emergencies and Disease Outbreaks.

Component of PM-ABHIM

The scheme has two components, which are Centrally Sponsored Scheme (CSS) Components and Central Sector (CS) components.

The status of CSS component is as under:

- Under the CSS components of the scheme, provision has been made for the establishment of 730 District Integrated Public Health Labs in the country, wherein each district will have one such lab.
- All the Districts with more than 5 Lakhs population will have 50 to 100 bedded Critical Care Hospital Blocks and remaining districts will have Referral linkages.
- 3382 Block Public Health Units (BPHUs) at the block level, Construction of 17,788 Building less Sub-Centres as Ayushman Bharat- Health & Wellness centres and 11,024 Health & wellness Centres in Urban areas with a focus on slum and slum like areas are envisioned under the scheme during the period 22-2021 to 26-2025.
- Under the Total financial allocation for the State/UTs during the scheme period (2026-2021), is Rs.54,204.80 Crore.
- Under the Centrally Sponsored Scheme (CSS) component of PM-ABHIM, administrative approval has been accorded to the States/UTs for an amount of Rs. 42,274.68 Crore for construction/

strengthening of 18,358 Sub-Health Centres- Ayushman Arogya Mandir (AAM), 14,114 Urban- AAM, 2878 Block Public Health Units, 683 Integrated Public Health Labs at District level and 564 Critical Care Blocks (CCBs) so far.

NATIONAL URBAN HEALTH MISSION

I. INTRODUCTION

National Urban Health Mission (NUHM) was approved on 1st May, 2013 as a sub-mission under an overarching National Health Mission (NHM), NRHM being the other sub-mission. NUHM envisages strengthening the primary health care delivery systems in urban areas and providing equitable and quality primary health care services to the urban population with special focus on slum dwellers and vulnerable population. It also seeks to de-congest secondary and tertiary health care facilities (District Hospitals/ Sub-District Hospitals / Community Health Centre) by providing robust comprehensive Primary healthcare services in urban areas.

NUHM covers all cities and towns with more than 50,000 population and District headquarters and State headquarters with more than 30,000 population. As per norm one UPHC is established for approximate 30,000 to 50,000 urban population. As a part of Ayushman Bharat, the existing UPHCs are being strengthened as Ayushman Arogya Mandirs (AAM) to provide preventive, promotive and curative services in cities closer to the communities. Also below UPHC, Urban-Ayushman Arogya Mandirs (U-AAM) on the population of 15,000-20,000 have been approved under 15th Finance Commission Health grants and PM-ABHIM. These U-AAMs are linked to the nearest UPHCs for administrative, financial, reporting, and supervisory purpose. The remaining cities/ towns are covered under National Rural Health Mission (NRHM). Implementation of NUHM is through the State Health Department or the Urban Local Bodies (ULBs). In seven metropolitan cities, viz., Mumbai, Delhi, Chennai, Kolkata, Hyderabad, Bengaluru and Ahmedabad the implementation is through the ULBs. For the other cities, the State Health Department decides whether

the NUHM is to be implemented through them or the other urban local bodies. So far, 1,242 cities have been covered under NUHM in 35 States / UTs except UT of Lakshadweep which is covered under NRHM.

II. COMPONENTS OF NUHM

(A) Service Delivery Infrastructure NUHM envisages setting up of service delivery infrastructure which is largely absent in cities/towns to specially address the healthcare needs of urban poor and provides:

(i) Urban-Primary Health Centre (U-PHC) U-PHCs to be established as per norm of one U- PHC for approximately 30,000 to 50,000 urban population. The U-PHCs are preferably be located within or near a slum for providing preventive, promotive and OPD (consultation), basic lab diagnosis, drug/ contraceptive dispensing services, apart from counselling for all communicable and non-communicable diseases.

(ii) Urban-Community Health Centre (U-CHC)

One U-CHC to be established for every 2.5 lakh population (in non-metro cities above 5 lakh population) and for every 5 lakh population in metro cities. It would provide in-patient services and would be a 30-50 bedded facility. For the metro cities, the U-CHCs may be established for every 5 lakh population with 100 beds

(iii) Outreach services: NUHM also support engagement of ANMs for conducting outreach services for targeted groups particularly slum dwellers and the vulnerable population for providing preventive and promotive healthcare services at the household and community level.

B. Community Process:

Following targeted interventions are envisaged under NUHM for the slum dwellers and urban poor population:

- One ASHA per 1,000-2,500 population covering approximately 200-500 households to serve as an effective, demand-generating link between the health facility and the urban slum population.
- One Mahila Arogya Samiti (MAS) per 250-500 population covering approximately

50-100 households to act as community based peer education group in slums. They would be involved in community mobilization, monitoring and referral with focus on preventive and promotive care.

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C. Ayushman Arogya Mandir (AAM):

As part of Ayushman Bharat, the existing U-PHCs are being strengthened as Ayushman Arogya Mandir (AAM) to provide preventive, promotive and curative services in cities closer to the communities. So far 5087 UPHC-AAM and 4770 U-AAM have been operationalized in urban areas (Source: AAM portal, Data as on 31.03.2024).

III. ACHIEVEMENTS OF NUHM

(i) Physical Progress

The programme is being implemented in the States/UTs for more than 10 years period and accounts for presence of augmented infrastructure and human resources dedicated towards urban areas. According to the 3rd Quarterly NHM-MIS Report for period October to December, 2023 submitted by the States/UT, the information regarding progress of activities approved under NUHM is as follows-

(a) Progress under infrastructure

- 1,242 cities/ towns covered under NUHM
- 5,367 UPHCs & 233 UCHCs are operational.
- Out of 5367 UPHCs, 5087 have been operationalized as Ayushman Arogya Mandir (AAM) as per AAM portal (as on 31st March, 2024, enclosed)
- 4,770 Urban-Ayushman Arogya Mandirs (U-AAMs) are operationalized as per AAM Portal (as on 31st March, 2024)

(b) Progress of HR under NUHM:

- 4,260 Medical Officers (3218 Fulltime and 1042 Part-Time)
- 378 Specialists in-position
- 8,558 Staff Nurse in-position
- 19,529 ANMS in position
- 3,312 Pharmacist in-position
- 3,708 Lab Technician in-position
- 497 Public Health Managers in position
- 1,684 Programme Management staff in position at State/ District/ City level

(c) MHUs under NUHM

- 34 Mobile Medical Units functional

(d) Progress under Community Process

- 86,264 ASHAs are in position (one ASHA covers 200 to 500 households)

• 87,330 Mahila Arogya Samiti (MAS) are formed (One MAS covers 50- 100 households)

• As part of Ayushman Bharat, the existing U- PHCs are being strengthened as Ayushman Arogya Mandir (AAM) to provide preventive, promotive and curative services in cities closer to the communities. So far, 5087 U-PHCs have been converted into Ayushman Arogya Mandir (AAM) in the States/ UTs(except Delhi). As per AAM Portal Data, about 5.88 crore screenings done for Hypertension and around 4.77 crore screenings done for Diabetes at these Ayushman Arogya Mandir. Similarly, these functional Ayushman Arogya Mandir have done 2.25 crore screening for oral cancer, 69.90 lakhs for cervical cancer and 1.09 crore for breast cancer in women as on 31.03.2024.

• National Quality Assurance Standards (NQAS) were developed for urban health facilities in Year 2016 and institutional framework has been set up in all State/ UTs. Till date, 465 UPHCs have been quality certified at the National level and 267 UPHCs at the State level (As on 29 February 2024).

• Kayakalp and Swachh Swasth Sarvatra (SSS) have been expanded to cover urban areas also and U-PHCs have been awarded under Kayakalp scheme. Kayakalp scheme was revised to a incentive scheme recently. In FY 2022-23, and 1,621 UPHCs and 46 UCHCs have qualified for incentives based on external assessment.

(ii) Financial Progress:

Since the launch of NUHM in FY 2013-14 till the FY 2021-22, funds to the tune of Rs 8,788.48 cr and 7,165.87 cr have been allocated and released respectively to the States/ UTs for implementation of the programme activities. From FY 2022-23, finance related matters have been merged with NHM.

IV. GUIDELINES / BROCHURES DEVELOPED

The guidelines shared with the States/ UTs on implementation of NUHM include NUHM Implementation Framework, Handbook for MAS Routine Immunization, Strengthening Immunization in Urban Areas, Program Safeguard Systems Assessment under the proposed ADB



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Ministry of Health & Family Welfare
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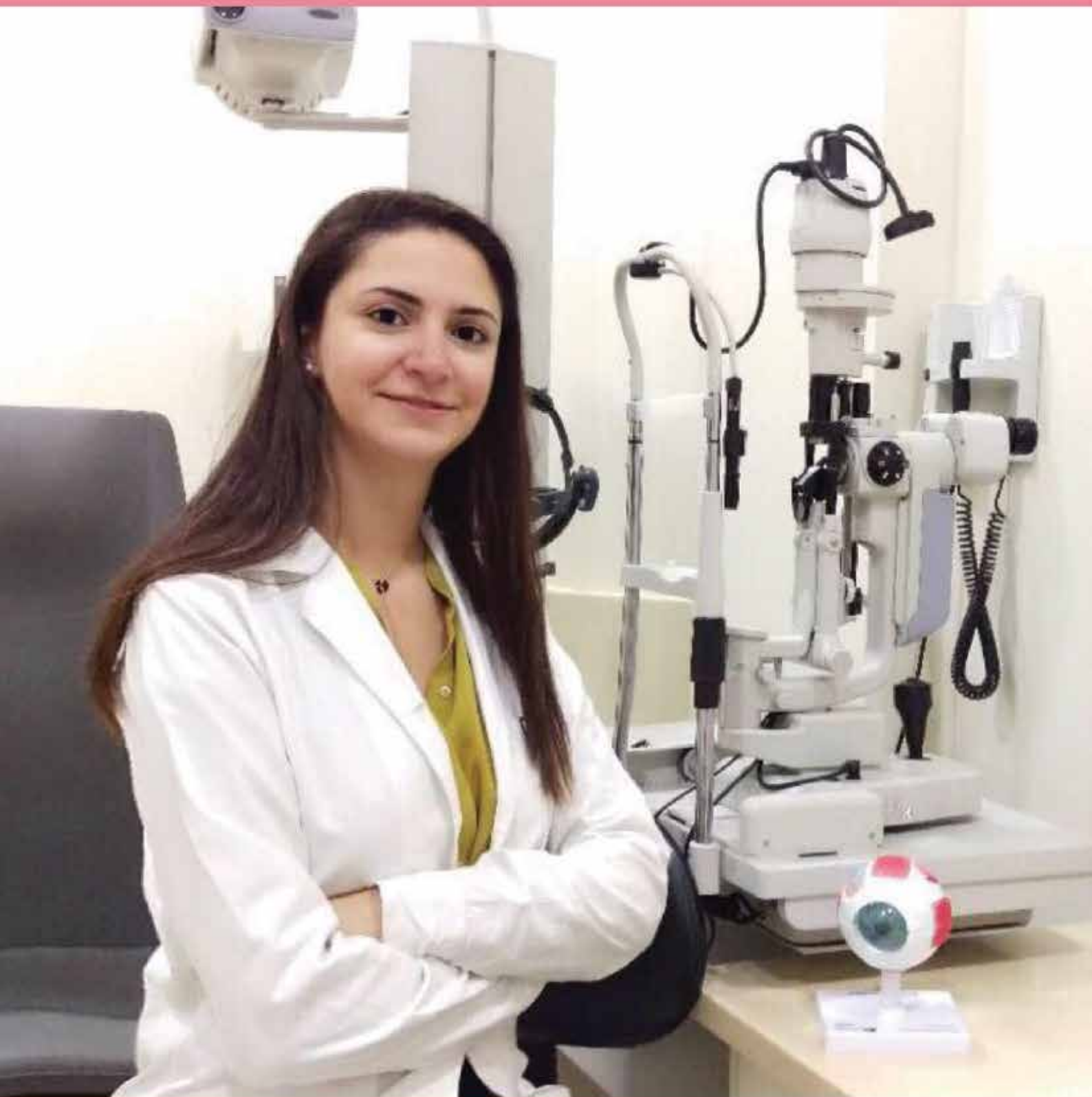


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⁵Data on file, Bausch & Lomb Incorporated, Rochester, NY.

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Machine Learning Applied to 3D Optic Disc Analysis for Glaucoma Risk Assessment Across Different OCT Scan Protocols Without a Normative Database



1. Introduction

Glaucoma is one of the leading causes of irreversible blindness worldwide, affecting millions of people annually. The disease is often asymptomatic in its early stages, making timely diagnosis particularly challenging. Early detection of glaucomatous changes is crucial for preventing vision loss and improving long term patient outcomes.

One well-established method for assessing glaucoma is the Disc Damage Likelihood Scale (DDLS), which evaluates structural changes in the optic nerve head (ONH) based on the extent of neuroretinal rim loss. This method categorizes glaucomatous damage severity by analyzing the relationship between the optic cup and neural rim, while also accounting for optic disc size without relying on a normative database.

While DDLS is recognized for its reliability and utility in clinical practice, it is not a standalone diagnostic tool. Rather, it is one

of several methods used to identify signs of glaucoma, and its implementation is often limited to specific imaging modalities or scan protocols, such as 3D optic disc-only scans or fundus images. In this article, we introduce an enhanced approach to DDLS analysis that overcomes these limitations. We want to present a solution, which is capable of performing DDLS analysis on any OCT scan protocol that captures the optic nerve, including 3D optic disc scans (which provide the most detailed view of the nerve), as well as OCT horizontal and vertical 3D wide scans. By leveraging advanced machine learning models, we achieve unprecedented flexibility and accuracy, ensuring reliable analysis across different scanning protocols and OCT systems.

Unlike traditional systems restricted to specific devices or data formats, our solution processes scans from multiple OCT systems. Moreover, it excels in challenging scenarios, providing clinicians with a robust and versatile tool for

analyzing **potential signs of glaucoma.**

A Brief Theoretical Overview

Optical coherence tomography (OCT) scans vary in the anatomical regions they capture. One specific type is the optic disc OCT scan (Figure 2), which provides high-resolution imaging of the optic disc and the surrounding optic nerve head

(ONH) structures. This scan type is commonly used in glaucoma assessment, as it allows for the evaluation of the optic nerve's structure, including neuroretinal rim, optic cup, surrounding peripapillary retinal nerve fiber layer (RNFL) key areas affected in glaucomatous damage.

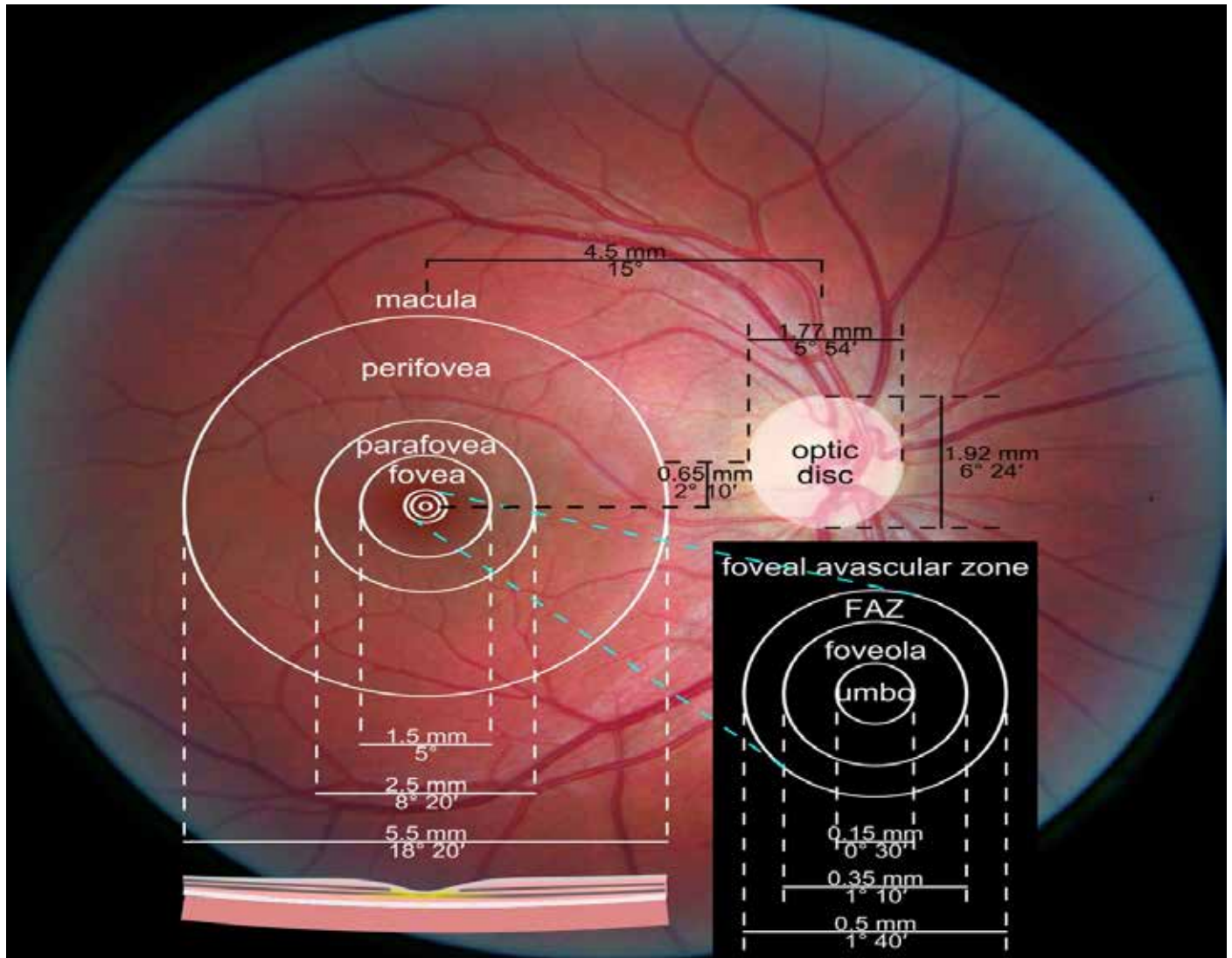
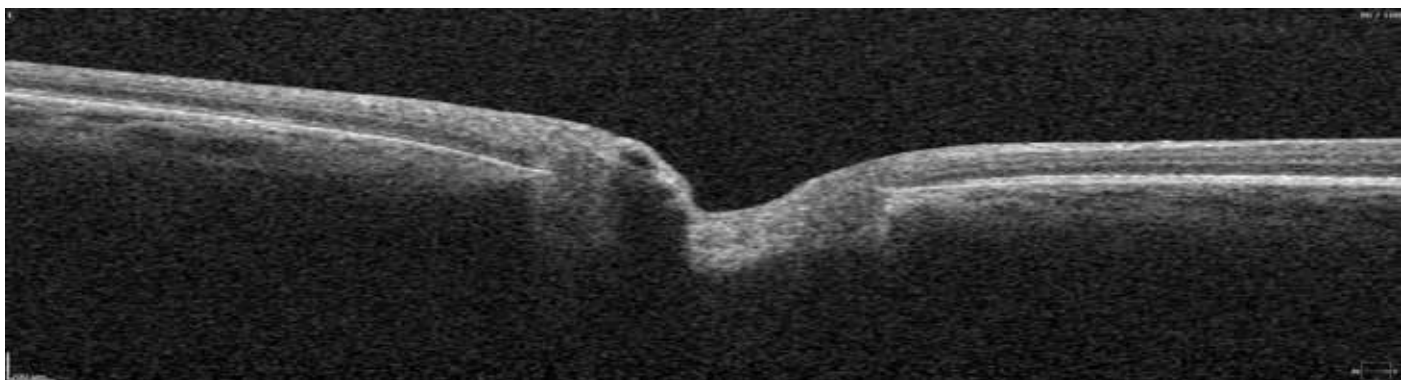


Figure 1. Photograph of the retina of the human eye, with overlay diagrams showing the positions and sizes of the macula, fovea, and optic disc



In contrast, macular OCT scans (Figure 3) focus on the central retina, providing detailed visualization of structures such as the foveal center, retinal layers, and macular biomarkers (such as drusen,

hypertransmission, fluids etc). Since the macula is anatomically distinct from the optic nerve head, standard macular scans do not capture the ONH comprehensively.

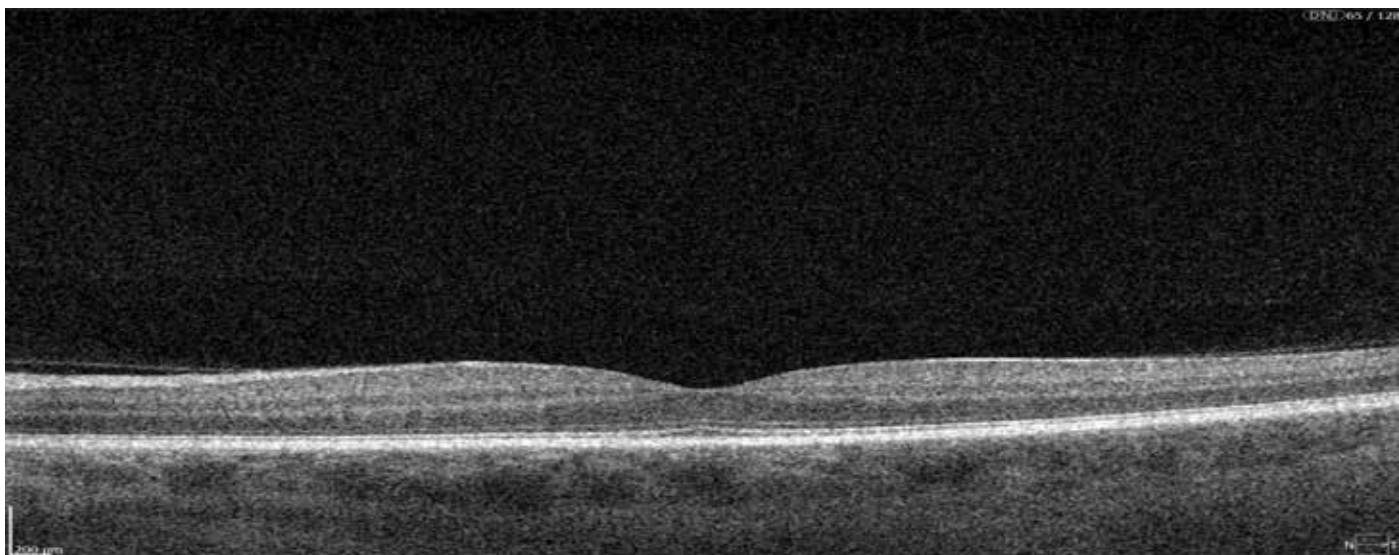


Figure 3. 6 mm OCT b-scan of the macular region, showing the foveal pit and retinal layers.

A more comprehensive scanning approach is 12 mm wide scan OCT (Figure 4), which captures both the macular region and optic nerve head in a single scan. This broader field of view allows for the simultaneous assessment of central retinal structures

and optic nerve-related changes, making it valuable for detecting and monitoring conditions that affect both regions, such as glaucoma and other neurodegenerative or vascular retinal diseases.

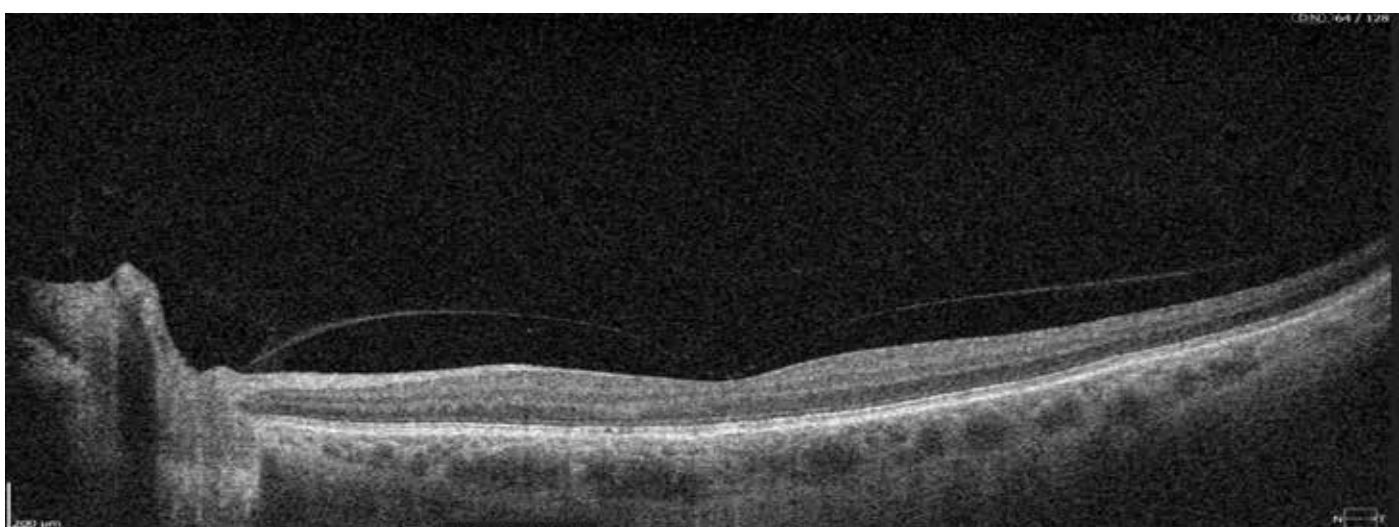


Figure 4. 12 mm wide scan OCT b-scan, which captures both the macular region and part of the optic nerve head.

2. Results

2.1. Experiment Setup

Brief Method Overview

To evaluate the effectiveness of DDLS analysis in assessing glaucoma severity, we designed an experiment comparing results obtained from processing 3D Optic Disc OCT scans and 3D Wide scan OCT scans with the corresponding reports generated by the OCT system.

Our method follows four key steps:

1-Detecting optic nerve landmarks like Bruch's Membrane Opening (BMO) points

(Eye Keypoints Retrieval / OCT Keypoint Detector Model);

2-Segmenting the inner limiting membrane (ILM) (Retina Layers Segmentation Model);

3-Reconstructing the neuroretinal rim geometry;

4-Applying the Disc Damage Likelihood Scale (DDLS) for classification.

The dataset below was used to validate the algorithm.

Dataset Used for Validating the Entire Algorithm

For validation, we compared our algorithm's DDLS measurements with the DDLS values generated by the built-in algorithms of the Optopol REVO NX 130 OCT system.

This provided a baseline for assessing accuracy and consistency.

To validate our approach, we conducted an experiment comparing DDLS metrics derived from:

-3D Optic Disc OCT scans, which are traditionally used for DDLS analysis.

-3D Wide scans, which capture both the macular and optic nerve regions, providing a more comprehensive dataset for analysis.

The dataset includes imaging data from 37 patients examined using the Optopol REVO NX -130 OCT system, with each patient undergoing the following protocols on the same day:

-3D Optic Disc OCT (6mm zone): 168 scans

-3D Wide scan (horizontal protocol, 12mm): 128 scans

-A report was obtained from the 3D Optic Disc OCT scans, containing all parameters calculated by the device.

-Since no manual annotations are available for these data, our comparison is conducted directly against the device-generated results.

The distribution of data was as follows:

-Glaucomatous Optic Disc: 21 cases;

-Normal Optic Disc: 16 cases.

2.2. Final Validation Results: DDLS

Accuracy and Error Metrics

To evaluate the performance of our DDLS analysis method, we compared its results with the corresponding DDLS values generated by the OCT device's built-in algorithms. The device reports serve as a reference point for all calculations, meaning the accuracy, MAE/ STD values presented below indicate the level of agreement between our method and the device's measurements.

The parameters compared below are the key indicators for glaucoma stage assessment.

The rim-to-disc ratio (RDR) represents the thinnest neuroretinal rim width relative to the vertical optic disc diameter.

A lower RDR indicates a more advanced stage of rim thinning as glaucoma leads to progressive narrowing of the neuroretinal rim due to the loss of ganglion cells axons.

The rim absence angle (RAA) quantifies the extent of neuroretinal rim loss in degrees. It defines the angle where the rim is completely absent, exposing the optic cup. A wider RAA suggests a more severe stage of glaucoma, as it indicates greater rim loss across the disc circumference.

Both RDR & RAA provide complimentary perspectives on structural optic nerve damage:

RDR measures the smallest remaining rim thickness in proportion to the disc.

RAA evaluates how much of the disc circumference has lost its rim.

By considering both parameters together a more comprehensive assessment of glaucoma severity can be achieved. Based on RDR and RAA, a DDLS stage is assigned, allowing for standardized classification of glaucoma progression.

Key Observations

1. Our Goal: Consistency with Device Reports, Not Outperformance

2. High DDLS Staging Accuracy for Both Scan Types

-3D Optic Disc OCT scan: 97.3% accuracy in determining DDLS glaucoma stage.

-3D Wide scan OCT: 94.59% accuracy, demonstrating strong reliability despite a broader scan area and fewer scans capturing the nerve, leading to less available information.

Conclusion:

Both types of scans allow the production of clinically reliable DDLS results, but as expected, 3D optic disc scans provide slightly better accuracy due to their higher resolution of the optic nerve head (ONH). The small accuracy gap and close values for key parameters between the two suggests that 3D wide scan OCT can still be a viable option for glaucoma assessment, despite offering less detailed information about the optic nerve compared to optic disc scans.

3. RD Ratio and Rim Absence Angle: High Precision Within Clinical Margins

RD Ratio (rim-to-disc ratio):

Step size between DDLS stages: 0.1.

Mean Absolute Error (3D Optic Disc OCT scan): 0.008 (significantly smaller than step size).

Mean Absolute Error (3D Wide scan OCT)

Featured Events!



MEDICA 2025 is an event held from November 17, 2025 to November 20, 2025 in Düsseldorf, Germany.

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Expomed Eurasia Expo 2025 will be held at Tüyap İstanbul Fuar ve Kongre Merkezi in Istanbul, Türkiye from 24.to 26.04.2025.

MEDICAL
T A I W A N

Medical Taiwan 2025 will be held at Nangang Exhibition Center in Taipei, Taiwan from 05.to 07.06.2025.

CPHI

CPHI Worldwide Expo 2025 will be held at Messe Frankfurt Exhibition Grounds in Frankfurt, Germany from 28.to 30.10.2025.



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