Summer training at

(May 3, 2021, to June 27, 2021)

A Project Report On

Maternal Health in Sikkim, India – Comparative study Between NFHS - 4 & NFHS – 5

Online Course On

Healthcare Marketplace by University of Minnesota (coursera)

Submitted By: -

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MBA Hospital and Health Management

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ACKNOWLEDGEMENTS

At the beginning of this report, I would like to increase my genuine & enthusiastic commitment towards all the personages who have made a distinction in this endeavour. Without their dynamic direction, help, cooperation & support, I would not have made progress within the project.

I am ineffably indebted to my mentor **Dr Prahlad Rai Sodani (President, IIHMR UNIVERSITY)** for his continuous support and guidance to accomplish this assignment.

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I also would like to thank my parents and individuals of my family, who has continuously upheld me ethically as well as economically.

Mohit Agarwal

TO WHOMSOEVER IT MAY CONCERN

Date: 27th June 2021

This is to certify that **Mohit Agarwal** has successfully completed his tenure as a Business Development Consultant from 3rd May 2021 to 27th June 2021 at Impact Guru Technology Ventures Pvt. Ltd. His performance during the tenure was found to be good.

We wish him all the very best for his future endeavors.

Regards,

Sandeep Kumar Tripathy
(Senior VP Business Development)
Impact Guru Technology Ventures Pvt. Ltd

CONTENTS

Acronyms/Abbreviations

WHO	World Health Organization
MMR	Maternal Mortality Rate
NFHS	National Family Health Survey
RMNCH+A	Reproductive, Maternal, Newborn, Child and Adolescent Health
IIPS	International Institute for Population Sciences
ANM	Auxiliary Nursing Midwifery
JSY	Janani Suraksha Yojana

PART – 1

ABOUT THE ORGANIZATION

IMPACTGURU

About the Organization

ImpactGuru.com, “healthcare financing platform for patients raises money online for medical expenses via crowdfunding. It aggregates a large number of online payments to allow any individual requiring financial assistance to raise funds for medical expenses – be it cancer, transplant, accident, or any medical emergency. ImpactGuru.com has already helped mobilize Rs 400 cr / US$60mm via crowdfunding along with its partners.”

ImpactGuru.com was brooded at Harvard Development Lab within the USA in 2014. ImpactGuru.com as of late declared a $2mm Arrangement A circular, driven by Apollo Healing centers Bunch, Currae Healthtech Finance, RB Ventures (Singapore based VC Support), Shorooq Speculations (Middle East based VC Support), Wander Catalysts (India’s #1 blessed messenger speculator bunch) with participation from different other speculators from the USA, Southeast Asia, and the Center East.

ImpactGuru.com was as of late granted Best Innovation Arrangement for Social Great by Economic Times Cleverly Wellbeing & Tech Grants, chosen among the best 5 early-stage startups in India by TiE, included numerous times on CNBC Youthful Turks. ImpactGuru.com was ranked among the best 21 Startups Globally to Observe within the space in which it works by CB Insights. ImpactGuru’s senior administration is driven by Harvard, Wharton, Parsons, IIT, and IIM alumni with the originators as of late being profiled in Fortune 40 under 40.

Vision & Mission

- “We believe in your power to make someone smile, to save someone’s life, to foster brilliant ideas, to make a social change and to be the impact you want to make in the world.”
- “An Impact Guru is someone who envisions change, who finds solutions to social problems, who steps up to support another change-maker, who makes kindness a habit, who dares to follow his/her dream, or who simply helps out a friend in need.”
- “We believe that each individual holds the power to effect great change and given the right tools and the right backing can become an Impact Guru himself/herself. We’ve built an easy-to-use platform to transform individuals into Impact Gurus, who will lead the world to goodness. We offer the best online tools to mobilize the crowd towards great ideas and projects and get good things done fast.”

Organization Structure

- C.E.O & co – Founder
  - Support
    - Human Resources
    - Finance
      - Settlements
    - Public Relations
    - Admin
    - C.E. O's Office
  - Product and Technology
  - Sales and BD
  - Customer Happiness

- C.O.O and co -Founder
  - Growth Team
    - Marketing
    - Communications
    - Donor Retention
  - Creative

PART – 2

PROJECT REPORT

Maternal Health in Sikkim, India – Comparative study Between NFHS – 4 & NFHS – 5

INTRODUCTION

BACKGROUND

Maternal health refers to the health of women during pregnancy, childbirth, and the postnatal period (WHO). It covers the health care aspects of family planning, antenatal care, prenatal and postnatal care to ensure a positive and satisfying experience, in most cases, and reduce rates of maternal morbidity and mortality.

In 2017, approximately 810 women died from preventable causes related to pregnancy and childbirth every day.

Between 2000 and 2017, the maternal mortality ratio dropped by about 38% worldwide.

Out of all maternal deaths, 94% occurs in low and lower-middle-income countries.

Young adolescents (ages 10-14) face a higher risk of complications and death as a result of pregnancy than other women.

Sikkim is a northeastern state in India. It borders the Tibet Independent Locale of China in the north and upper east, Bhutan, Nepal, and West Bengal. Sikkim is near India's Siliguri Hall close to Bangladesh. Sikkim is one of the un-crowded and second littlest states in the country. Sikkim's capital and biggest city are Gangtok. Practically 35% of the state is covered by the Khangchendzonga Public Park – a UNESCO World Legacy Site.

DEMOGRAPHIC INDICATORS

As per the official census, Sikkim has a total population of 6.1 lakh which is 0.0005 % of the total Indian population.

The literacy rate in Sikkim has seen improvement from 68.81% 2001 census to 82.20% 2011 census

24.97% of the total population of Sikkim people live in urban regions and 75.03 % of the total population of Sikkim live in the villages of rural areas.

DEMOGRAPHIC INDICATORS	SIKKIM	INDIA
Description	2011	2011
Actual Population	6,10,577	1,210,854,977
Urban	153,578	377,105,760
Rural	456,999	833,087,662
Male	3,23,070	623,724,248
Female	2,87,507	586,469,174
Population Growth	12.89%	17.64%
Sex Ratio	890	943
Density/km2	86	382
Area km2	7,096	3,287,240
Literacy	81.42 %	74.04%
Male Literacy	86.55 %	82.14%
Female Literacy	75.64 %	65.46%

Objectives

To describe the maternal health in Sikkim.

To compare the various factors contributing to promote and increase maternal health between NFHs 4 & 5

Material and Methodology

Quantitative data from NFHS 4 AND 5 were collected from the NFHS factsheets that are related to maternal health and its factors like antenatal care, delivery care, postnatal care.

This study is conducted to compare the trend of maternal health from NFHS 4 TO NFHS 5.

Demographic indicators for Sikkim are taken from the Sikkim state portal

RESULTS AND DISCUSSION

Maternal mortality refers to the death of a mother after giving birth or one and half months after getting rid of the pregnancy she was carrying. World Health Organization (WHO) defines maternal mortality rate as the number of women who die during and after pregnancy and giving birth. Under SDG 3 "Good Health and Well-being "all countries have made their target to bring the global maternal mortality ratio to less than 70 per 100 000 live births by the year 2030. In the whole world, maternal mortality has been reducing since many nations are making efforts to provide the best care to the mothers by insisting on delivering in the institutions where they are attended to by a professional. The National Family Health Survey (NFHS-4) provides detailed information concerning the people of India, their health, and nutrition, having been released in 2015-16. Also, the reports give statistics about the population and health of every state found in India. Importantly, NFHS-4 provides estimates based on the district level for most of India's significant indicators. On the other hand, the NFHS-5 refers to the fifth series of the National Family Health Survey, illustrating significant information about the population of India as a whole, for each state and union. Essentially, the NHFS-4 follows the census of 2011 in providing estimates of important illustrators of the state level and national figures. Further, the NFHS-5 is designated to show the estimates of the national indicators as in the year 2017. Besides, maternal health is a significant factor in the growth of any nation in raising equity and decreasing poverty levels. When mothers survive, the whole country develops economically, socially, and developmental trials are resolved. Most commonly, males are also involved in maternal health to ensure the safety of mothers in delivery and caring for them after the whole process. Therefore, NFHS-4 analyzes maternal health differently from what NHFS-5 does, based on antenatal, delivery, postnatal, and male involvement maternal care, as the latter shows a significant change in maternal health from what was experienced during the former survey.

Firstly, each nation has a certain percentage of cases of maternal mortality in mothers giving birth. WHO indicates many women die as a result of pregnancy or childbirth (WHO, 2019). Essentially, Singh et al. (2021) indicate maternal deaths occurring among mothers who were young aged between 15-24 years were high in India in the research they conducted. In the study, the researchers analyzed data received from four rounds of NFHS, one being 2015-16 (NFHS-4). Importantly, Singh et al. (2021) showed the NFHS-4 had 83% the antenatal care utilized skilled birth attendance. Meaningfully, skilled birth attendance helps in reducing maternal and mortality in mothers giving birth. The government of India is working hard to address the causes of maternal health by adopting various frameworks including the RMNCH+A 2013 (Government of Sikkim, 2019). Further, maternal mortality can be averted when health interventions are undertaken to improve delivery in the institutions. Further, the research shows NFHS-5 data indicates a significant improvement in maternal health; thus, reducing the mortality rate.

Antenatal Care

According to the NFHS-5, in the number of the mothers who were recorded to have given birth five years before the research was done, four out of five of them have indicated to have received antenatal care from a healthcare provider. Antenatal care according to the WHO refers to the check done on pregnant mothers from time to time to identify any complications, which may occur but not show symptoms to give directions and information concerning the pregnancy and the due delivery (Gülmezoglu et al., 2017). On the other hand, NFHS-4 indicates 94 per cent of such mothers received the required antenatal care from their last birth (IIPS, 2017). Also, NFHS-5 shows antenatal care from a doctor was received by 67% of the mothers while only 14% of mothers received it from an auxiliary nurse midwife (ANM) (IIPS & ICF, 2021). However, NFHS-4 had better figures when compared to NFHS-5, where 71% got antenatal care from a doctor while 23% received it from an auxiliary nurse midwife (IIPS, 2017). Essentially, the figures show prenatal care had reduced since 2015-16 when the NFHS-4 report was produced to the moment the NFHS-5 survey was done. Further, NFHS-4 indicates 5% of the mothers who has their last birth five years ago did not receive any antenatal care, while NFHS-5 shows the percentage was 13% (IIPS, 2017) and (IIPS & ICF, 2021). As indicated, there was a drop in the number of women who have gone for antenatal check-in from 76% to 64% (IIPS, 2015) and (IIPS & ICF, 2021). In the NFHS-4, the survey showed the women who registered the pregnancy for live birth were 99%, while NFHS-5 indicated they were 95% (IIPS, 2017) and (IIPS & ICF, 2021). Even when the women were given folic acid, a small percentage of them consumed the medicine in the recommended time. Since the NFHS-4 report was made, NFHS-5 indicates only 92% of the previous births received protection against neonatal tetanus after mothers were given tetanus toxoid vaccinations (IIPS & ICF, 2021). On the other hand, NFHS-4 elaborates the percentage of such mothers was 97% (IIPS, 2017).

Furthermore, if there is any hope of receiving better maternal health, prevention must be put in place. For instance, NFHS-5 showed an increase in the percentage of women who took the intestinal parasitic drug when they were pregnant, where NFHS-4 had 9% while NFHS-5 had 30%. (IIPS & ICF, 2021) and (IIPS, 2017). The parasitic intestinal infections increase the chances of a pregnant woman developing anaemia. Both reports show a high probability of anaemia, causing increased maternal mortality in women after giving birth. Further, intestinal parasites can cause internal bleeding in the mothers, leading to too much blood loss. Also, such women will experience impairment of taking in the required nutrients, which assist in strengthening the body, improving digestion and food absorption. Most importantly, Women who encountered a health worker in the community before both surveys received advice in different areas. In NFHS-4, women were advised on how to do family planning and the significance of giving birth in a health facility (94%), care for the cord (96%), breastfeeding (98%), and keeping the child warm (94%) (IIPS, 2017). In the NFHS-5 survey, women who were advised about breastfeeding were (92%) similar to keeping the child warm, for family planning and significance of health facility

delivery (84%), while (83%) on caring for the cord (IIPS & ICF, 2021). Closer scrutiny of the figures shows a very sharp drop in the percentage of mothers who talked to community health workers and were advised.

The following table shows a comparison of maternal health in Sikkim

Table 1: comparison of maternal health in Sikkim

Indicator	NFHS-5 (%)	NFHS-4 (%)
Mothers received an antenatal check-up in the first trimester	**63.7**	**76.2**
Mothers received at least 4 antenatal care visits	**58.4**	**74.7**
Mothers whose last birth was protected against neonatal tetanus	**92.0**	**97.2**
Mothers who consumed iron-folic acid for 100 days or more when they were pregnant	**54.7**	**52.8**
Mothers who consumed iron-folic acid for 180 days or more when they were pregnant	**31.5**	**26.8**
Registered pregnancies for which the mother received Mother and Child Protection (MCP) card	**94.6**	**99.1**
Mothers who received postnatal care from a doctor/nurse/LHV/ANM/midwife/other health personnel within 2 days of delivery	**69.3**	**74.2**

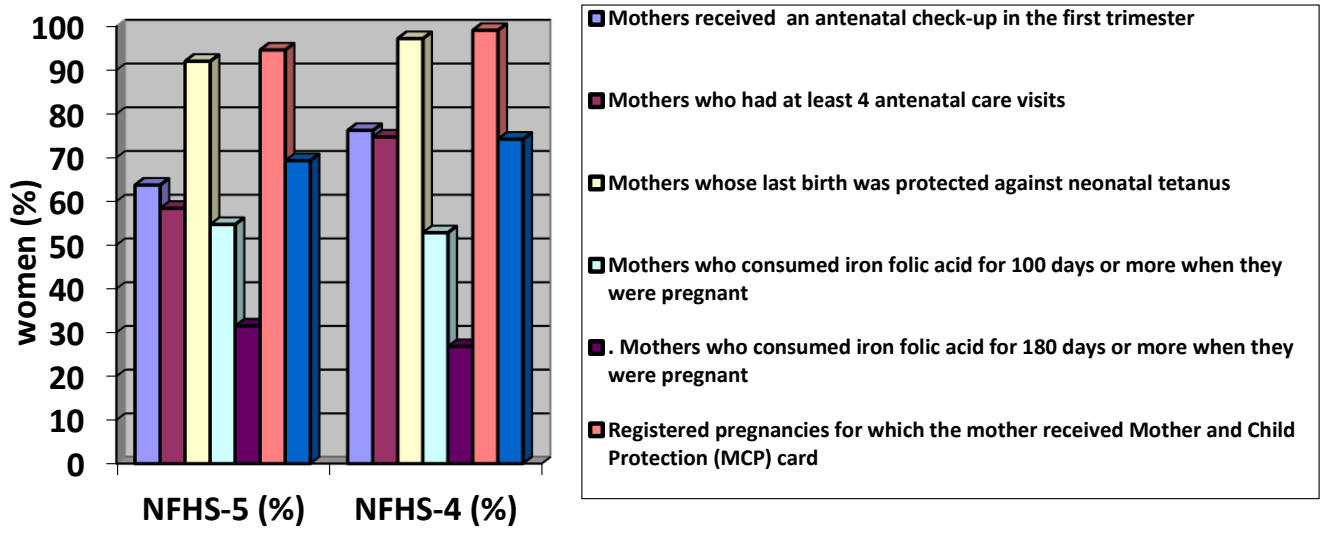

Figure 1: comparison of maternal health in Sikkim graph

Delivery Care

When the time comes for delivery, every mother deserves the best care, which can only be found in health institutions. WHO refers to delivery care to be the attention and assistance given to a mother during the time of giving birth (WHO, 2018). Essentially, the NFHS-4 report indicates 95% of women gave birth in a health facility, mostly government one similar to what is shown by NFHS-5. (IIPS, 2017) and (IIPS & ICF, 2021). The remaining percentage of women in both reports gave birth at home. Further, the NFHS-5 report shows many women, 97%, who have given birth in the last five years were assisted by skilled healthcare providers (IIPS & ICF, 2021). On the other hand, NFSH-4 indicates a similar figure, 97% of mothers who gave birth while being assisted by professionals (IIPS, 2017). The remaining percentage of women were either assisted by friends, relatives, or the traditional attendants, as others received no help. Women who gave birth through cesarean in the NFHS-5 report were 33%, increasing from 21% in NFHS-4. (IIPS, 2017) and (IIPS & ICF, 2021). Of the total births in the period, 11% were emergence cases, rising from 6% in NFSH-4 (IIPS & ICF, 2021) and (IIPS, 2017). Importantly, in the NFHS-4, Janani Suraksha Yojana (JSY) gave financial help to women while giving birth in a healthcare facility which formed 29%, a figure which dropped in NFSH-5 to form only 6% (IIPS, 2017) and (IIPS & ICF, 2021). The women who were given priority for the financial assistance were those who hailed from the rural regions, 8% compared to 3% from urban in NFHS–5 (IIPS & ICF, 2021). Similarly, NFHS-4 indicates women in the rural areas who were giving birth in health facilities were the luckiest ones, for they received financial aid from JSY. According to the Government of Sikkim (2019), Janani Shishu Suraksha was launched to enhance delivery in public institutions at no cost. Therefore, the financial aid given by JSY includes all expenses such as medicine, transport to the hospital and back home among others.

Table 2: Delivery care

Indicator	NFHS-5 (%)	NFHS-4 (%)
Birth in institutions	94.7	94.7
Public facility	78.6	82.7
Home Birth by a skilled worker	2.6	2.4
Births in presence of skilled personnel	96.5	97.1
Births by cesarean	32.8	20.9
Cesarean in a private facility	55.4	49.3
Caesarean in a public facility	30.4	18.1

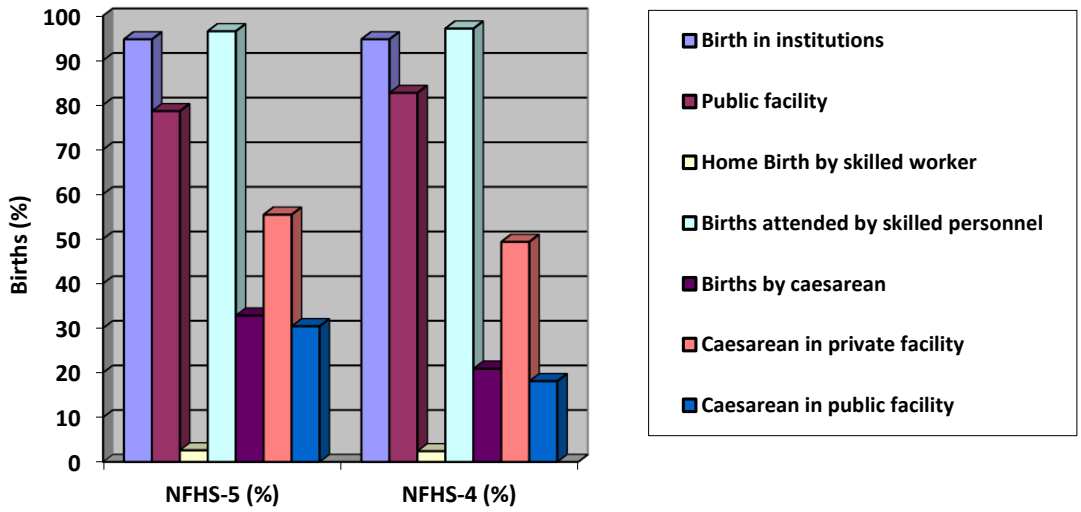

Figure 2: Delivery care graph

The following table shows maternal care indicators for births during the years preceding the survey, NFHS-5, and NFHS-4.

Table 3: trends in maternal care indicator, total according to the Sikkim NFHS-5 report

Indicator	NFHS-5(%)	NFHS-4(%)
Women who received antenatal care	82.6	91.3
Women who had at least four antenatal care visits	58.9	74.1
Women who received antenatal care within the first trimester of pregnancy	68.6	76.6
Women who received full antenatal care	96.0	97.0
Deliveries assisted by health personnel	98.1	97.8

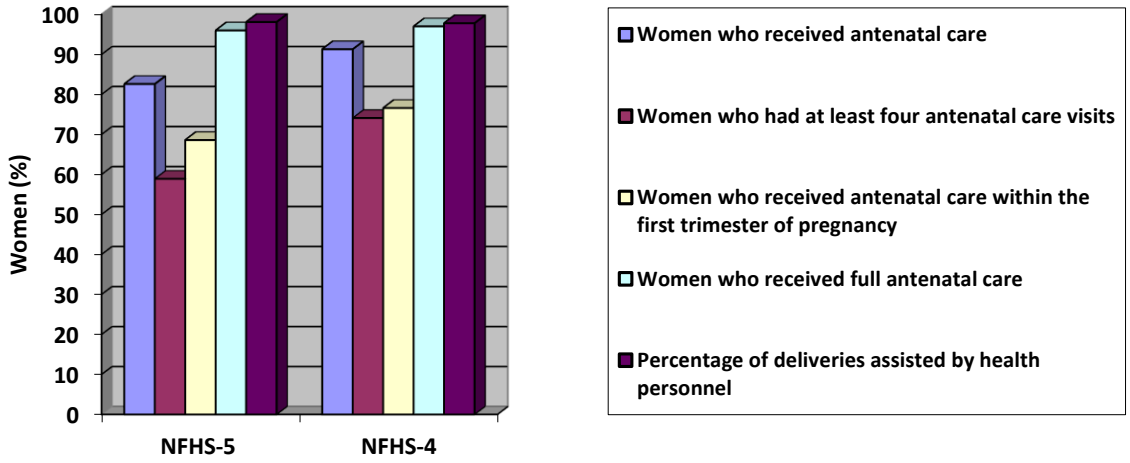

Figure 3: trends in maternal care indicator, totals according to the Sikkim NFHS-5 report graph

Postnatal Care

Postnatal care for a mother performed early enough decreases chances of maternal death at a large percentage. WHO indicates postnatal care is the attention and help given to a woman and her child after giving birth and for the first one month and two weeks (WHO, 2015). For instance, the NFHS-5 report indicates 78% of women in Sikkim were checked after their last birth compared to 81% in NFHS-4, indicating a drop (IIPS & ICF, 2021) and (IIPS, 2017). Significantly, within two days of giving birth, NFHS-4 shows 75% of women had a postnatal check compared to 71% in NFHS-5, signifying a drop (IIPS, 2017) and (IIPS & ICF, 2021). Concurrently, 82% of women who gave birth in public healthcare institutions and 92% of those in private ones went for postnatal checks (IIPS, 2017). However, the NFHS-5 survey shows a drop in the figures where only 71% of mothers who gave birth in public healthcare institutions and 75% in private went for postnatal care, indicating a decrease from what was witnessed in NFHS-4 (IIPS & ICF, 2021). Deductively, there was a rise in the number of mothers who got a health check within two days after giving birth. In this case, NFHS-4 shows the percentage was only 15%, while NFHS-5 indicates 67%, showing sensitization (IIPS, 2017) and (IIPS & ICF, 2021).

Male involvement in maternal care.

In the analysis of the maternal health indicators, the NFHS-5 did not engage with the involvement of males and their role in the care. On the other hand, the NFHS-4 report shows that 96% of men who had children below the age of 3 years indicated the child's mother had received antenatal care (IIPS, 2017). Importantly, 89% of men said they attended no less than one antenatal check-up of the mother (IIPS, 2017). A significant figure of 71% of men received advice from care providers or healthcare providers in the community on what to do if the woman encountered a complication with the pregnancy she was carrying (IIPS, 2017). Consequently, of all the advised men, between 72% and 79% were informed about the signs to check if there was any pregnancy complication (IIPS, 2017). Besides, 81%-93% of men less than 3 years of age were informed about various aspects of maternal healthcare (IIPS, 2017). Further, 93% of fathers were informed about the significance of mothers getting good nutrition care during the period they were pregnant (IIPS, 2017). Essentially, a diet, which is healthy for a pregnant woman is significant in enhancing normal growth. Also, the fetus depends on a healthy diet to develop in the womb of the mother.

Additionally, in NFHS-4, the author shows men were informed about the significance of the child's mother going for delivery in the hospital or any healthcare facility. Maternal health cannot be complete without delaying getting the next child; thus, 81% of men were told about family planning (IIPS, 2017). For instance, IIPS and ICF (2021) indicate if parents waited for about three years before giving birth to the next child, then the risk of maternal mortality is reduced. On the other hand, the NFHS-4 report does not indicate if a gap between one child and the other, especially three years, positively impacts maternal mortality. Significantly, the NFHS-5 ignored the male contribution to maternal health since there was no analysis. Other Factors in the NFHS-5 report analysis, such as anaemia, were found by the authors to have a capability of causing maternal mortality in women. Similarly, NFHS-4 indicates anaemia has a high ability to result in maternal deaths (IIPS, 2017). Essentially, anaemia refers to the condition where an individual experiences low haemoglobin levels in the blood and has a great impact on the life of a mother during and after the child's birth.

Table 4: Men involvement in maternal care

Antenatal and delivery care information	Total (%)
Men for whom the child's mother received antenatal care	91.6
Men who were present at any antenatal care visit	76.2

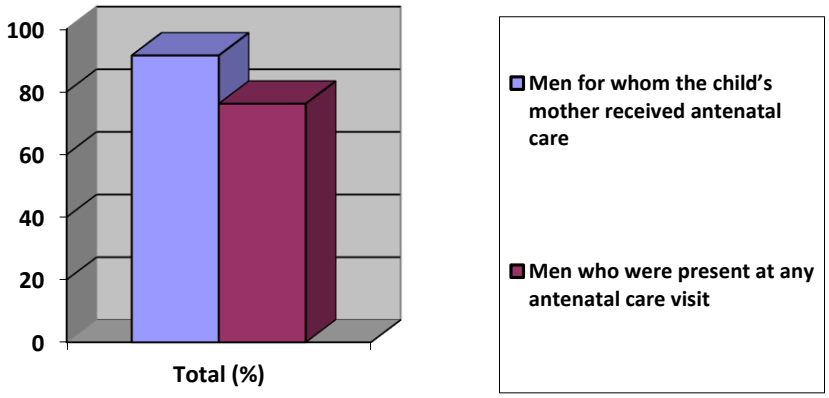

Figure 4: Men involvement in maternal care graph

CONCLUSION

Conclusively, NFHS-5 shows maternal health is significant in the country's growth by enhancing increase in equity and decreasing poverty. Maternal health services are significant in the mother, the child, and the whole population of a nation such as India. The mothers who attended antenatal care in the NFHS-4 report were more when compared to NFHS-5. Also, mothers who took the intestinal parasite drugs increased from 9 % in NFHS-4 to 30 % in NFHS-5. Significantly, even though some figures dropped in antenatal, delivery, and postnatal care, there was an overall improvement in maternal health in the NFHS-5 survey, reducing the deaths of mothers after giving birth.

YEAR	Maternal Deaths Per 1,00,000 live births
2016-17	**17**
2017-18	**09**
2018-19	**10**
2019-20	**08**

Figure 5: Maternal Deaths Per 1,00,000 live births

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PART – 3

ONLINE COURSE

Healthcare Marketplace by University of Minnesota (coursera)

Course Description

“Healthcare Marketplace course will help you to identify, define, and describe potential business and public policy solutions to the challenges facing society’s growing demand for health services. Students will master a body of knowledge on the health care sectors major components through reading and reflection.”

“Healthcare has many different cultural components that will be discussed as historic trends as well as future demographic challenges. Students will understand diverse philosophies and cultures within and across societies as they relate to healthcare. This outcome is particularly critical because of the tradeoffs needed to be assessed as medical technology advances faster than budgets and perhaps cultures are sometimes willing to tolerate.”

Course Objectives

- What is the healthcare marketplace?
- Evolution of healthcare marketplace
- Provider market in health Economy
- Health insurance market, mid-20th century government and private health insurance
- Medical technology market & its cost
- Global market trends

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- Market Evolution: Post-World War II
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-

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Lesson 3 Measuring Medical Technology Value

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-

Learning Methods

This course uses video lectures, cases, Assignments, Practice Quizzes & graded Quizzes

This course also encourages discussion prompts.

Each lesson has a practice quiz and each module have a graded quiz & assignment

Key Learnings

MODULE 1

- Healthcare marketplace overview
- spending drivers and quality trends in the healthcare marketplace
- Pre and Post World War II situation in the healthcare marketplace and evolution

MODULE 2

- Price discrimination in the provider market
- Physician market evolution and physicians in 21st century
- The hospital market, its issues and quality and safety
- How policies impact hospitals and hospital market Trajectory

MODULE 3

- What is health insurance? Its risks & how does it work?
- Early health insurance, health insurance evolution
- Private and public health insurance.
- Current US health reform & future health reforms.

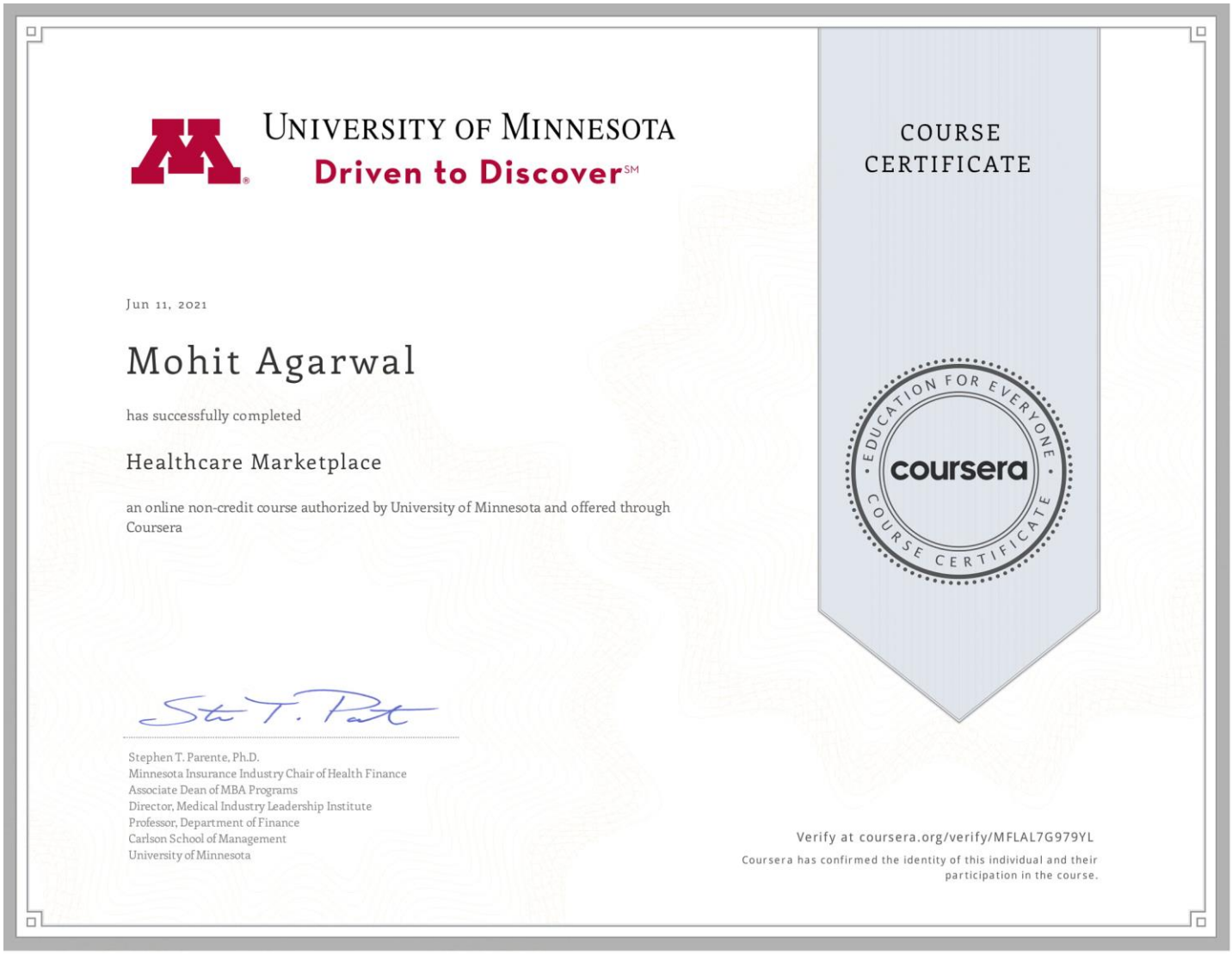
MODULE 4

- Difference between the medical device and a drug
- How does new technology make money?
- FDA approval of medical devices and drug
- Achieving cost-effectiveness

MODULE 5

- Key issues of 21st century
- Medical tourism
- Goals and values of Health IT
- Innovation and technology

Course Certificate



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