

Quantifying Emergency and Essential Surgical Care Across Primary, Community and District Healthcare Facilities In Rajasthan

Summer Training Report

Conducted at

**WORLD HEALTH ORGANISATION
GENEVA**

Submitted by

Mahak

MBA-HM 19TH Batch

IIHMR University



INSTITUTE OF HEALTH MANAGEMENT RESEARCH

(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that **Mahak**, student of Masters of Business Administration in Hospital and Health Management 19th Batch from Institute of Health Management and Research, Jaipur has undergone her summer training at **World Health Organisation, Geneva** from **30th March 2015 to 30th May 2015**. Study on **"Quantifying Analysis on Emergency and Essential Surgical Care Across Primary, Community and District Health Facilities in Rajasthan"** has been carried out by her alone and her approach to this study has been sincere, scientific and analytical.

The study was prepared during summer training period. This is her original work.

I wish her success in all her future endeavours.



Col. Dr. Ashok Kaushik

Dean (Academic & Students Affairs)

IIHMR University, Jaipur



Dr. J.P. Singh

Assistant Professor

IIHMR University, Jaipur



**World Health
Organization**

20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 – WWW.WHO.INT

Tel. direct: +41 22 791 4011
Fax direct: +41 22 791 3111
E-mail: cherianm@who.int

Service Delivery and Safety Department
World Health Organization- HQ
Geneva, Switzerland
www.who.int/surgery

29 May 2015

To Whomever it May Concern

Ms Mahak, Masters student from Institute of Health Management Research University, Jaipur, Rajasthan, India has successfully completed her internship from 30 March to 30th May 2015, at the World Health Organization (WHO), Headquarters, Geneva, under Dr Meena Cherian, *WHO Emergency & Essential Surgical Care Program* (EESC) Lead, in Service Delivery and Safety Department.

She managed the WHO *Global Initiative for Emergency and Essential Surgical Care* (GIEESC) global network of 1900 members from 135 countries. She entered completed WHO Situational Analysis Tool (SAT) for various levels of health facilities in Rajasthan into the WHO EESC Global Database and also entered other countries data for the preparation of reports.

Ms Mahak assisted in the WHO Emergency and Trauma Care training course workshop in the Master's Program on Emergency Care for Doctors for Africa in Parma University, Italy for 12 countries of Africa. In the workshop she presented the preliminary outline of her paper on the collection of data and methodology paper Rajasthan.

She updated the WHO *Integrated Management for Emergency & Essential* Toolkit for the production of CD's and for the website: <http://www.who.int/surgery/publications/imeesc/en/> Following the Nepal earthquake she assisted in creating a list of GIEESC volunteers for Resilience of Surgical Services in Nepal in collaboration with WHO Emergency Response Team. She had an opportunity to attend the Versalius Symposium The continuing influence of "De Humane Corporis Fabrica" on science and art in Geneva organized by Embassy Of Belgium in April.

She participated in the Regional Committee Meeting of the International Federation of Medical Students Association in Arhus Denmark in April 2015, which provided her the opportunity to interact with medical students from 60 countries, attend lectures by public health experts from the WHO European region and the Headquarters. She was part of the discussion group in two sessions: Universal Health Coverage and Global surgery which allowed her a deeper understanding of the subject.

She assisted in the WHO meetings on advocacy tools for the upcoming 68th World Health Assembly (WHA) resolution on EESC which was adopted by 194 countries on 22nd May 2015.

منظمة الصحة العالمية • 世界卫生组织

Organisation mondiale de la Santé • Всемирная организация здравоохранения • Organización Mundial de la Salud

In particular, she had an important role in finalizing the draft of a short film on EESC, to address universal access to timely and safe surgical care which was launched at the 68th WHA at the Palais des Nations (United Nations), Geneva, Switzerland.

She was part of the team organizing the 68th WHA side event on 22nd May 2015 at the Palais des Nations, which consisted of Ministers of Health from four countries as panel speakers. This allowed her to interact with policy makers and delegates representing ministers of health from several countries and international organizations.

During her internship she showed a lot of interest in learning about EESC's role in public health, and was very hardworking and delivered all the tasks on time. Apart from the WHO GIEESC activities Ms Mahak was active in the Interns Board Committee as a housing coordinator.

We hope she will utilize her experience of the WHO internship in her future work and we wish her all the best in her career.

Yours faithfully,



Dr Meena Nathan Cherian MD

Emergency & Essential Surgical Care Program, Lead

ACKNOWLEDGEMENT

I would sincerely like to thank Dr. Meena Nathan Cherian, Program lead, Emergency and Essential Surgical Care Program at World Health Organisation, Geneva for giving me an opportunity to work with her on this program .Her support and guidance during the summer training was truly essential for organisational understanding .She also gave me an opportunity to expand my horizons to other international platforms as well.

I am endlessly grateful to Dr.Santosh and Dr.Nutan for believing in me and providing me this opportunity and giving valuable guidelines for the betterment of the paper.

With profound gratitude and gratefulness , I express my deep indebtedness to Dr.J.P.Singh, my mentor IIHMR University, whose insights and experiences have shaped the content of this paper.

I also extend my gratitude to the director of IIHMR University, Dr.S.D.Gupta for his immense support in this project .

I would also like to thank the staff at Service Delivery and Safety Department(SDS) ,WHO, Geneva for being helpful and making this summer training an unforgettable experience.

Table of contents

1. Acknowledgement.....	5
2. Abbreviations.....	7
3. About the organisation.....	8
4. Emergency and Essential Surgical Care Program.....	11
5. World Health Assembly.....	14
6. Objective.....	15
7. Methodology.....	15
8. WHO Tool for Situational Analysis.....	16
9. Results.....	23
10. Discussion.....	33.
11. Conclusion.....	34

Abbreviations

WHO	World Health Organisation
EESC	Emergency and Essential Surgical Care
SDS	Service Delivery and Safety Department
Gol	Government of India
PHC	Primary Health Centers
CHC	Community Health Centers
DH	District Hospitals
AIDS	Acquired Immunodeficiency Syndrome
HIV	Human Immunodeficiency Virus
NCDs	Non Communicable Diseases
MDGs	Millennium Development Goals
UN	United Nations
GIEESC	Global Initiative for Emergency and Essential Surgical Care
Inc.	Incorporation
NHS	National Health Survey
NRHM	National Rural Health Mission

About The Organisation

The World Health Organization is a specialized agency of the United Nations (UN) that is concerned with international public health. It was established on 7 April 1948, headquartered in Geneva, Switzerland.

The WHO is a member of the United Nations Development Group. Its predecessor, the Health Organization, was an agency of the League of Nations. The constitution of the World Health Organization had been signed by 61 countries on 22 July 1946, with the first meeting of the World Health Assembly finishing on 24 July 1948. It incorporated the Office International d'Hygiène Publique and the League of Nations Health Organization. Since its creation, it has played a leading role in the eradication of smallpox. Its current priorities include communicable diseases, in particular HIV/AIDS, Ebola, malaria and tuberculosis; the mitigation of the effects of non-communicable diseases; sexual and reproductive health, development, and aging; nutrition, food security and healthy eating; occupational health; substance abuse; and driving the development of reporting, publications, and networking. The WHO is responsible for the World Health Report, a leading international publication on health, the worldwide World Health Survey, and World Health Day (7 April of every year). The head of WHO is Margaret Chan.

WHO fulfils its objectives through its core functions: providing leadership on matters critical to health and engaging in partnerships where joint action is needed; shaping the research agenda and stimulating the generation, translation and dissemination of valuable knowledge; setting norms and standards and promoting and monitoring their implementation; articulating ethical and evidence-based policy options; providing technical support, catalysing change, and building sustainable institutional capacity; and monitoring the health situation and assessing health trends.

These core functions are set out in the Twelfth General Programme of Work, which provides the framework for organization-wide programme of work, budget, resources and results. Entitled "Not merely the absence of disease", it covers the 6-year period from 2014 to 2019. More than 7000 people from more than 150 countries work for the Organization in over 150 WHO country offices, 6 regional offices, at the Global Service Centre in Malaysia and at the headquarters in Geneva, Switzerland. WHO's multilingual web site, publications and other resources ensure that health information reaches the people who need it, in the languages they can understand. This makes access to health information both more equitable - and effective. In line with the mission to provide global leadership in public health, WHO employs health specialists, medical doctors, scientists, epidemiologists and also people with expertise in administration and finance, information systems, economics, health statistics as well as emergency preparedness and response.

Arenas in which WHO is working

Health systems

WHO's priority in the area of health systems is moving towards universal health coverage. WHO works together with policy-makers, global health partners, civil society, academia and the private sector to support countries to develop, implement and monitor solid national health plans. In addition, WHO supports countries to assure the availability of equitable integrated people-centred health services at an affordable price; facilitate access to affordable, safe and effective health technologies; and to strengthen health information systems and evidence-based policy-making.

Non communicable diseases

Noncommunicable diseases (NCDs), including heart disease, stroke, cancer, diabetes and chronic lung disease, and mental health conditions - together with violence and injuries - are collectively responsible for more than 70% of all deaths worldwide. Eight out of 10 of these deaths occur in low- and middle-income countries. The consequences of these diseases reach beyond the health sector and solutions require more than a system that prevents and treats disease.

Promoting health through the life-course

Promoting good health through the life-course cuts across all work done by WHO, and takes into account the need to address environment risks and social determinants of health, as well as gender, equity and human rights. The work in this biennium has a crucial focus on finishing the agenda of the Millennium Development Goals and reducing disparities between and within countries.

Communicable diseases

WHO is working with countries to increase and sustain access to prevention, treatment and care for HIV, tuberculosis, malaria and neglected tropical diseases and to reduce vaccine-preventable diseases. MDG 6 (combat HIV/AIDS, malaria and other diseases) has driven remarkable progress but much work remains.

Preparedness, surveillance and response

During emergencies, WHO's operational role includes leading and coordinating the health response in support of countries, undertaking risk assessments, identifying priorities and setting strategies, providing critical technical guidance, supplies and financial resources as well as monitoring the health situation. WHO also helps countries to strengthen their national core capacities for emergency risk management to prevent, prepare for, respond to, and recover from emergencies due to any hazard that pose a threat to human health security.

Corporate services

Corporate services provide the enabling functions, tools and resources that makes all of this work possible. For example, corporate services encompasses governing bodies convening Member States for policymaking, the legal team advising during the development of international treaties, communications staff helping disseminate health information, human resources bringing in some of the world's best public health experts or building services providing the space and the tools for around 7000 staff to perform their work in 1 of WHO's more than 150 offices.

Governance takes place through the World Health Assembly, which is the supreme decision-making body; and the Executive Board, which gives effect to the decisions and policies of the Health Assembly. The Organization is headed by the Director-General, who is appointed by the Health Assembly on the nomination of the Executive Board.

Recently 68th World Health Assembly was Organised:

Jagat Prakash Nadda – Union Minister of Health and Family Welfare of India was elected as President of the Sixty-eighth World Health Assembly 22 May 2015. Jagat Prakash Nadda brings two unusual perspectives to his role as Union Minister of Health and Family Welfare of India and current President of the World Health Assembly. First, he is a lawyer, not a doctor of medicine; yet health has always been central to his personal agenda. Second, and no less important, is his belief that political action can improve all aspects of human life. Since his years as a student, he has surrounded himself with people with a high degree of political consciousness. “It has been a long journey through which I kept working for my society,” he says. The year 2015 ends the Millennium Development Goals era, and delegates at the Assembly are looking ahead to how health will be situated in the post-2015 UN agenda. Mr Nadda believes there are important lessons we have learned that countries should apply as they move forward.

It is time to refocus and think differently, he says. “We need to think locally before we act globally. We must find out the strengths and weakness of each country and find out what gaps remain - and then strategize accordingly.”

In a complex world where many actors in health share the global stage, WHO continues to have a unique role, Mr Nadda believes. “WHO must remain the highest decision-making body in global health,” he says, while stressing the need to bring all partners along and take their viewpoints into account.

During this year's World Health Assembly, WHO, in collaboration with UN Foundation, produced a live, one-hour broadcast. the five-day, interactive, digital event provided insight into the major happenings of the Health Assembly, while also offering original content and exclusive conversations with top experts on the key health issues being discussed. Topics included Ebola, climate and health, the post-2015 health agenda, maternal, adolescent and child health, antimicrobial resistance, healthy aging, and more. Viewers were able to participate by submitting questions online through the live stream chat box or on Twitter using #WHA68 and #SocialGood. Guest experts then addressed the questions submitted.

Emergency and Essential Surgical Care Program (EESC)

The WHO Emergency and Essential Surgical Care (EESC) program is dedicated to providing life-saving surgical care to meet the need in areas of the world where the burden is high, access is low, and the disparity is great.

Injuries

Every year, 5 million people are losing their lives because of injuries. Young people between the ages of 15 to 44 years account for almost 50% of the world's injury-related mortality, representing a significant proportion of a country's economically-productive workforce. The profound economic impact in a developing country is unmistakable. Often, a family's primary breadwinner has no access to surgical services in the event of a debilitating injury, causing the family to give up precious resources to support the injured family member. The WHO EESC program works with its partners to strengthen EES system delivery to victims of road traffic accidents, violence, falls, and burns by providing guidelines, training tools, and support to increase the capacity of first-referral level facilities to deliver safe and effective emergency surgical care through education and training.

Infectious Diseases

Surgeons in developing countries have an inordinate amount of risk of HIV exposure. Protective measures such as wearing eye masks and double-gloving confer substantial benefit. The annual occupational risk of HIV transmission was estimated at 0.27% for health workers, 0.7% among surgeons if no special protective measures were taken (Mwanza, Tanzania). A survey of protective equipment in government hospitals in Sierra Leone revealed major deficits .

The high prevalence of HIV infection in Sub-Saharan Africa and the lack of access to guidelines and postexposure prophylaxis have led to great concern within the surgical community, particularly at the first-referral health facilities, where health personnel perform life-saving surgical procedures without adequate protection.

The WHO EESC program works to prevent HIV transmission and to increase the overall awareness on the risks involved in the transmission of other blood-borne infectious disease in the surgical workplace (i.e., Hepatitis B and C) by providing guidelines and establishing standard precautions, best practice protocols for clinical procedures safety, and an essential surgical equipment list which includes personal protective equipment.

Cancer

Every year, around 10 million people worldwide are newly-diagnosed with cancer. Approximately 7.5 million people die of cancer, two-thirds of which are found in developing countries. Unchecked, another 84 million will die in the next decade. Cancer is traditionally viewed as a disease of developed countries; however, due to our relative

success with decreasing mortality from infectious diseases and with an increasingly aging population, more and more developing countries are seeing a rise in newly-diagnosed cases of cancer. Yet resources, infrastructure, and systems to handle the diagnosis and management of cancer are far from adequate in these places. Often, patients present with advanced stages of cancer with little or no hope for cure. The WHO EESC program works to prevent and detect cancers early in low- and middle-income countries by providing guidelines and training materials to teach doctors, nurses, and healthcare workers on how to perform biopsies, which can detect the early stage of cancers of the breast, cervix, skin, and mouth and allow prompt referral to more advanced health facilities.

Pregnancy-related complications

Every day, 800 women die from complications of childbirth. A pregnant woman from a developing country is 36 times more likely to suffer from pregnancy-related complications compared with a pregnant woman from a developed country.

The leading causes of death in developing countries are severe bleeding, hypertension, sepsis, unsafe abortion, and obstructed labour, for which simple, life-saving, and cost-effective treatment exists.

The WHO EESC program works with its partners towards maternal and child health by providing technical guidelines, training materials on the management of obstetric emergencies, best practice protocols on female genital injury management and obstetric safety, and data on the capacity of district hospitals to provide emergency obstetric care.

Disasters and Emergencies

In the last decade, more than 2.6 billion people have been affected by natural phenomena such as earthquakes, tsunamis, landslides, cyclones, heat waves, floods, or severe cold weather. These disasters lead to mass casualty (e.g., blunt trauma, crush-related injuries, drowning) that can overwhelm local medical resources and prevent them from delivering comprehensive and definitive medical care. The WHO EESC program, together with its partners, has worked towards disaster preparedness and response by creating the WHO Disaster Management Guidelines: Emergency Surgical Care in Disaster Situations, a comprehensive manual that details management of common injuries encountered in disaster situations.

Congenital Anomalies

Congenital anomalies refer to a group of conditions encountered after birth that includes cleft lip and palate, hernias, anorectal malformations, and clubfoot. According to the Disease Control Priorities (Surgery), 50% of congenital anomalies can be treated with surgery. Simple, cost-effective, and non-invasive treatment exists for certain conditions such as clubfoot.

Every year, around 100,000 babies worldwide are born with a clubfoot. Clubfoot is an inborn deformity of the foot, where either or both feet are twisted inward, causing the child to walk on his ankles. Left untreated, the condition causes severe lifelong disability. 80% of untreated clubfoot are found in developing countries. A patient who undergoes surgery will require two to three more surgeries over his lifetime. At 30

years old, a patient who underwent surgery will have a quality of life similar to a 50 year-old patient with Parkinson's Disease.

The Ponseti method is a non-invasive, low-cost procedure to correct clubfoot with a 98% success rate. It consists of manually aligning the child's foot with the application of a series of casts. It can take as little as 5 casts and 20 days to give a child a new chance at life. The EESC program, together with its partners, has helped in the promotion of this cost-effective and disability-preventive method by developing an educational package and delivery mechanism to train physicians and health workers worldwide.

The WHO Programme for Emergency and Essential Surgical Care (EESC) is dedicated to strengthening health systems towards achieving universal health coverage, and ensuring the safety and efficacy of clinical procedures in Anaesthesia, Surgery, Orthopaedics, and Obstetrics.

The Programme was established to address challenges and take the lead in efforts to reduce global surgical burdens as a result of injuries, pregnancy-related complications, congenital anomalies, cancer, diabetic complications, infections, humanitarian crises and other surgical conditions.

Vision:

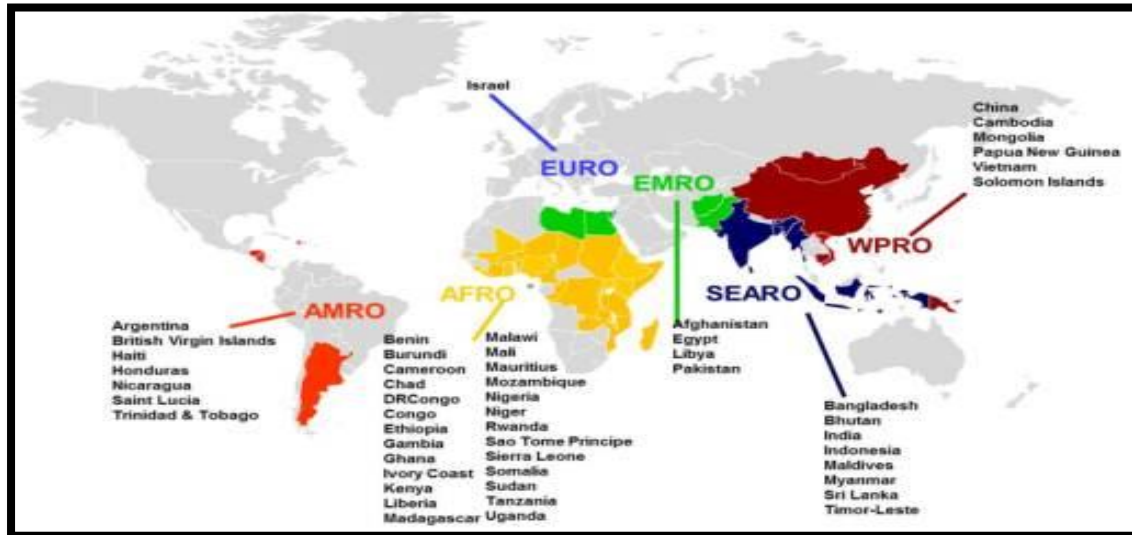
Vision is universal access to high quality and safe emergency and essential surgical services.

Mission:

Mission is to work with other WHO departments and global multidisciplinary partners to:

- Support the development and adoption of evidence-based policies and plans towards strengthening surgical services;
- Set norms and standards for surgical care;
- Strengthen education and training programmes to improve anaesthesia and surgical services;
- Build capacity for safe and high quality surgical care at all levels; and
- Monitor the progress and impact of our strategies in reducing global surgical burden.

The WHO Global Initiative for Emergency and Essential Surgical Care (GIEESC) was established in December 2005. This global forum convenes multidisciplinary stakeholders representing health professionals, public health experts, health authorities, academia, leaders of education and training programs, NGOs, civil and professional societies, local and international organizations. WHO GIEESC includes 1794 members from 130 countries interested in collaborations towards reducing death and disability from injuries, pregnancy-related complications, congenital anomalies, disasters, and other surgical conditions in low-and middle-income countries.



68th World Health Assembly

Strengthening Emergency and Essential Surgical Care and Anaesthesia in the context of Universal Health Coverage

Historic moment for the WHO Emergency and Essential Surgical Care Program
 The 68th WHA passes the resolution A 68/15 on Strengthening Emergency and Essential Surgical Care and Anaesthesia as a Component of Universal Health Coverage on 22nd May 2015 in the morning session in Committee B Room XVII at the Palais des Nations, Geneva, Switzerland. We acknowledge the unanimous support of 194 countries for the resolution which was brought by Zambia to the agenda item 17.1. The following Member States and Non State Actors made their statement on the resolution: Zambia, Australia, USA, Thailand, Brazil, Vietnam, Namibia, Japan, Kenya, Togo, DPR Korea, Trinidad and Tobago, Switzerland, Canada, Malaysia, Qatar, Philippines, Ecuador, Rwanda, Indonesia, China, Zimbabwe, Cook Island, Haiti, Jordan, Ethiopia, Egypt, Chinese Taipei, World Federation of Societies of Anaesthesiologists, International Federation of Surgical Colleges, Union for International Cancer Control, IntraHealth International Inc.

Quantifying Emergency And Essential Surgical Care Across Primary, Community and District Healthcare Facilities In Rajasthan ,India

Significant barriers limit the safe and timely provision of surgical and anaesthetic care services in Rajasthan. Nearly one-half of India's population resides in rural areas where the geography makes travel for adequate surgical care very difficult. In Rajasthan 75.11% of the total population resides in rural areas and only 24.89 % lives in Urban areas. (National Health Mission, 2011)

This study was conducted across 60 health care facilities comprising 7 District Hospitals, 38 Community Health Centres and 15 Primary Health Centres.

The WHO Tool for Situational Analysis to Assess Emergency & Essential Surgical Care was utilized to capture health facilities' capacity to perform life-saving and disability preventing surgical *interventions*, such as resuscitation, surgical, trauma, obstetric and anaesthetic care. Data was collected across four categories: infrastructure, human resources, interventions and equipment & supplies.

Objective

The objective of this study was to assess the capacity of emergency and essential surgical care services available at various levels of health facilities in Rajasthan, India, for the purpose of providing a benchmark for critical areas needing improvement.

Strengths of the Study

Identifies concrete areas of need in surgical care capacity in a collaborative effort with World Health Organization in Rajasthan, India.

Methodology

The WHO Tool for Situational Analysis to Assess Emergency & Essential Surgical Care was utilized to capture health facilities' capacity to perform life-saving and disability preventing surgical interventions, such as resuscitation, wound management , burns, obstetrics, trauma, anaesthetic and other surgical procedures . Data was collected across four categories: infrastructure, human resources, Interventions and equipment & supplies.

The survey included of 108 questions divided into 4 categories. Section A consisted of 25 questions for Infrastructure and Type of health care facility, population served, water electricity and the availability of oxygen. Section B on Human Resources included 8 questions, including number of specialists (surgeons, anaesthesiologists, obstetricians/Gynaecologists) non specialist doctors, nurses and paramedics/Midwives performing surgical interventions . Section C Included 34 questions to assess interventions such as Resuscitation, cricothyroidotomy, burn management, caesarean section, fractures, club foot repair, amputation, joint dislocation treatment, . Section D consisted of 41 questions on the availability of Emergency and Essential Surgical Care Equipment and Supplies. Data from the questionnaires was complemented by interviews with health facility staff.

Tool for Situational Analysis to Assess Emergency and Essential Surgical Care

Reference: WHO Integrated Management for Emergency & Essential Surgical Care (IMEESC) toolkit:

<http://www.who.int/surgery/publications/imeesc/en/index.html>

Objective: to assess the gaps in the availability of Emergency and Essential Surgical Care (EESC) at resource-constrained health facilities.

If you prefer to complete the paper version, please print and return this form

by email to cherianm@who.int or post or fax to the following address:

Dr Meena Cherian
Emergency & Essential Surgical Care program
Clinical Procedures Unit
Department of Health Systems Policies & Workforce
World Health Organization
20 Avenue Appia, 1211
Geneva 27, Switzerland
Fax: 41 22 791 4836 www.who.int/surgery

Facility Information

Fields marked with an asterisk (*) are mandatory

COUNTRY*	
DATE OF DATA COLLECTION* (dd/mm/yyyy)	
NAME of person(s) filling out form*	
PHONE NUMBER of person(s) filling out form*	
EMAIL*	
NAME and ADDRESS of health care facility* (include city, state or province)	
Phone number of health care facility*	

Type of health care facility	Health Centre	Subdistrict / Community Hospital	District / Rural Hospital	Provincial Hospital	General Hospital	Private / NGO / Mission Hospital
	☐	☐	☐	☐	☐	☐

Section A: Infrastructure

	Insert number
1. Population served by this health care facility	
2. Number of beds	

3. Number of total admissions in one year	
4. Number of total outpatients in one year	
5. Number of total functioning operating rooms (major & minor)	
6. Number of patients at this facility requiring major & minor surgical (including obs/gyn) procedures per year	
7. Number of children (aged less than 15 years) at this facility requiring surgical procedures per year	
8. Number of patients to this facility that you refer for surgical intervention to a higher level facility per year	
9. How far (in km) does the average patient travel to get to your health facility for surgical services?	(km)
10. If you do not provide surgical services, how far does the average patient travel to access surgical services?	(km)

Fill in with either Not available , Sometimes or All the time	Not available	Sometimes	All the time
11. Do you have oxygen cylinder or concentrator supply with mask and tubing?			
12. Do you have running water?			
13. Do you have an electricity source/operational power generator?			
14. Do you have a functioning anesthesia machine?			
15. Do you keep medical records?			
16. Do you have an area designated for Emergency care?			
17. Do you have an area designated for Postoperative care?			
18. Do you have management guidelines available for Emergency care?			
19. Do you have management guidelines available for Surgery?			
20. Do you have management guidelines available for Anesthesia?			
21. Do you have management guidelines available for Pain Relief?			
22. Do you have a blood bank available at the facility?			
23. Do you have a facility to test hemoglobin & urine?			
24. Do you have a functioning X-ray machine available?			
25. Do you have a functioning pulse oximeter available?			

Section B: Human Resources

	Number of Full Time Workers	Number of Part Time Workers
26. Surgeons (qualified)		
27. Anesthesiologist physicians (qualified)		
28. Obstetricians/Gynecologists (qualified)		
29. General doctors providing surgery (including obstetrics)		
30. General doctors providing anesthesia		
31. Nurses/Clinical officers providing anesthesia		
32. Clinical officers providing surgery (including obstetrics)		
33. Paramedics/Midwives providing surgery (including obstetrics)		

Section C: Interventions

Do you perform these procedures?

	Yes/No	Do you refer?	If you refer, is it due to... (circle ALL that apply)		
			Lack of skills?	Non-functioning equipment?	Lack of supplies/drugs?
34. Resuscitation (airway, hemorrhage, peripheral percutaneous intravenous access, peripheral venous cut down)	Y N	Y N	Y N	Y N	Y N
35. Cricothyroidotomy/Tracheostomy	Y N	Y N	Y N	Y N	Y N
36. Chest tube insertion	Y N	Y N	Y N	Y N	Y N
37. Removal of foreign body (throat/eye/ear/nose)	Y N	Y N	Y N	Y N	Y N
38. Acute burn management	Y N	Y N	Y N	Y N	Y N
39. Incision & drainage of abscess	Y N	Y N	Y N	Y N	Y N
40. Suturing (for wounds, episiotomy, cervical & vaginal lacerations)	Y N	Y N	Y N	Y N	Y N
41. Wound debridement	Y N	Y N	Y N	Y N	Y N
42. Caesarean section	Y N	Y N	Y N	Y N	Y N
43. Dilatation & curettage/vacuum extraction (obstetrics/gyn)	Y N	Y N	Y N	Y N	Y N
44. Obstetric fistula repair	Y N	Y N	Y N	Y N	Y N

Section C: Interventions

Do you perform these procedures?

	Yes/No	Do you refer?	If you refer, is it due to... (circle ALL that apply)		
			Lack of skills?	Non-functioning equipment?	Lack of supplies/drugs?
45. Tubal ligation/vasectomy	Y N	Y N	Y N	Y N	Y N
46. Biopsy (lymph node, mass, other)	Y N	Y N	Y N	Y N	Y N
47. Appendectomy	Y N	Y N	Y N	Y N	Y N
48. Hernia repair (strangulated, elective, congenital)	Y N	Y N	Y N	Y N	Y N
49. Hydrocelectomy	Y N	Y N	Y N	Y N	Y N
50. Cystostomy	Y N	Y N	Y N	Y N	Y N
51. Urethral stricture dilatation	Y N	Y N	Y N	Y N	Y N
52. Laparotomy (uterine rupture, ectopic pregnancy, acute abdomen, intestinal obstruction, perforation, injuries)	Y N	Y N	Y N	Y N	Y N
53. Male circumcision	Y N	Y N	Y N	Y N	Y N
54. Neonatal surgery: abdominal wall defect, colostomy imperforate anus, intussusceptions	Y N	Y N	Y N	Y N	Y N
55. Cleft lip repair	Y N	Y N	Y N	Y N	Y N
56. Clubfoot repair	Y N	Y N	Y N	Y N	Y N
57. Contracture release/skin grafting	Y N	Y N	Y N	Y N	Y N
58. Closed treatment of fracture	Y N	Y N	Y N	Y N	Y N
59. Treatment of open fracture	Y N	Y N	Y N	Y N	Y N
60. Joint dislocation treatment	Y N	Y N	Y N	Y N	Y N
61. Drainage of osteomyelitis/septic arthritis	Y N	Y N	Y N	Y N	Y N
62. Amputation	Y N	Y N	Y N	Y N	Y N
63. Cataract surgery	Y N	Y N	Y N	Y N	Y N
64. Regional anesthesia blocks	Y N	Y N	Y N	Y N	Y N
65. Spinal anesthesia	Y N	Y N	Y N	Y N	Y N

Section C: Interventions

Do you perform these procedures?

	Yes/No	Do you refer?	If you refer, is it due to... (circle ALL that apply)		
			Lack of skills?	Non-functioning equipment?	Lack of supplies/drugs?
66. Ketamine intravenous anesthesia	Y N	Y N	Y N	Y N	Y N
67. General anesthesia inhalational	Y N	Y N	Y N	Y N	Y N

Section D: Emergency & Essential Surgical Care Equipment and Supplies

For details refer to WHO IMEESC toolkit www.who.int/surgery/publications/imeesc; WHO ETC guidelines www.who.int/violence_injury_prevention/services; WHOEML www.who.int/medicines/publications

	0 absent	1 available with frequent shortages or difficulties	2 fully available for all patients all the time
Capital Outlays			
68. Resuscitator bag valve & mask (adult)			
69. Resuscitator bag valve & mask (pediatric)			
70. Stethoscope			
71. Suction pump (manual or electric) with catheter			
72. Blood pressure measuring equipment			
73. Thermometer			
74. Scalpel with blades			
75. Retractor			
76. Scissors			
77. Oropharyngeal airway (adult size)			
78. Oropharyngeal airway (pediatric size)			
79. Forceps, artery			
80. Gloves (sterile)			
81. Gloves (examination)			

	0 absent	1 available with frequent shortages or difficulties	2 fully available for all patients all the time
82. Needle holder			
83. Sterilizer			
84. Vaginal speculum			
85. Nasogastric tubes			
86. Light source (lamp & flash light)			
87. Intravenous fluid infusion set			
88. Intravenous cannulas/scalp vein infusion set			
89. Syringes with needles (disposable)			
90. Sharps disposal container			
91. Tourniquet			
92. Needles & sutures			
93. Splints for arm, leg			
94. Urinary catheters (Foleys disposable)			
95. Waste disposal container			
96. Face masks			
97. Eye protection			
98. Protective gowns/aprons			
99. Soap			
Supplementary equipment for use by skilled health professionals			
100. Magill forceps (adult)			
101. Magill forceps (pediatric)			
102. Endotracheal tubes (adult)			
103. Endotracheal tubes (pediatric)			
104. IV infusor bags			
105. Chest tubes insertion equipment			
106. Laryngoscope Macintosh blades with bulbs & batteries (adult)			

	0 absent	1 available with frequent shortages or difficulties	2 fully available for all patients all the time
107. Laryngoscope Macintosh blades with bulbs & batteries (pediatric)			
108. Cricothyroidotomy set			

THANK YOU FOR YOU TAKING THE TIME TO COMPLETE THIS FORM

Results

The WHO Situational Analysis Tool was completed by 60 healthcare facilities across 12 districts of Rajasthan, which were comprised of 7 District Hospitals(DH),38 Community Health Centres(CHC) and 15 Primary Health Centres(PHC) .(Table 1)

Table 1: List of Primary Health centres(PHC), Community Health Centres(CHC) and District Hospitals(DH) that completed the WHO Situational Analysis Tool in the State of Rajasthan, India

Districts	PHCs(n=15)	CHCs(n=38)	DH (n=7)
Ajmer		Pushkar	JLN Medical College,Ajmer
		Sarwar	
		Tatgarh	
		Pisangan	
		Vijay Nagar	
Alwar		Thanagaji	General Hospital,Alwar
		Kotkasim	
		Bansoor	
		Tijara	
Banswara		Ghatol	MG District Hospital,Banswara
		Narwali	
		Choti Sarwan	
Barmer		Shiv	District Hospital ,Barmer
			Government Hospital ,Barmer
Bhilwara	Akola	Gulabpura	District MG Hospital,Bhilwara
Chittorgarh		Bhupal Sagar	District Hospital,Chittorgarh
		Kapasan	
		Nimbahera	
		Doongla	
		Rasmi	
		RawatBhata	
		Begun	
		Badi Sadri	
		Gangrur	
Dungarpur	Biliya Badgama	Punjpur	
	Chitari	Obri	

	Charwara	Bichwada	
	Dhambola		
	Pindawal		
	Taliya		
	Gariyata		
	Mewad		
Jaipur		Sanbhar	
Jhunjhunu		Nawalgarh	
Sikar	Goariya	Ajitgarh	
	Choupari	Khatu Shyam	
	Kanwat	Fatehpur	
	Kochar		
Sawai Madhopur	Thoi		
Udaipur	Salera Kalan	Badgaon	
		Sanwar	
		Mavli	
		Semari	
		Rishab Dev	
		Ganzi	
		Khemli	

Table 2 depicts number of all health care facilities available in 34 Districts of Rajasthan and the number of health care facilities covered in the analysis with respect to the total number of health care facilities. (Rajasthan; National Health Mission, 2011)

Table 2: District Health Facilities Available (Acc to National Health Mission, Government of Rajasthan)					
District	DH	CHC	PHC	Total Health Facilities	Health Facilities covered
Ajmer	2	20	63	85	6
Alwar	1	36	120	157	5
Banswara*	1	21	54	76	4
Baran	1	12	47	60	0
Barmer	1	22	93	116	3
Bharatpur	1	17	67	85	0

Bhilwara	1	23	74	98	3
Bikaner	1	13	55	69	0
Bundi	1	11	31	43	0
Chittorgarh	1	21	47	69	10
Churu	1	15	86	102	0
Dausa	1	15	44	60	0
Dholpur	1	7	27	35	0
Dungarpur*	1	15	54	70	11
Ganganagar	1	16	56	73	0
Hanumangarh	1	14	54	69	0
Jaipur	1	30	119	150	1
Jaisalmer*	1	8	21	30	0
Jalore	1	10	69	80	0
Jhalawar	0	15	42	57	0
Jhunjhunu	1	26	109	136	1
Jodhpur	2	24	93	119	0
Karauli	1	9	39	49	0
Kota	1	13	40	54	0
Nagaur	1	28	121	150	0
Pali	1	21	80	102	0
Pratapgarh	1	8	29	38	0
Rajsamand	1	12	44	57	0
Sikar	1	30	99	130	7
Sirohi	1	9	29	39	0
Sawai Madhopur	1	11	37	49	1
Tonk	1	9	59	69	0
Udaipur	1	27	96	124	8
Total	34	568	2098	2700	60

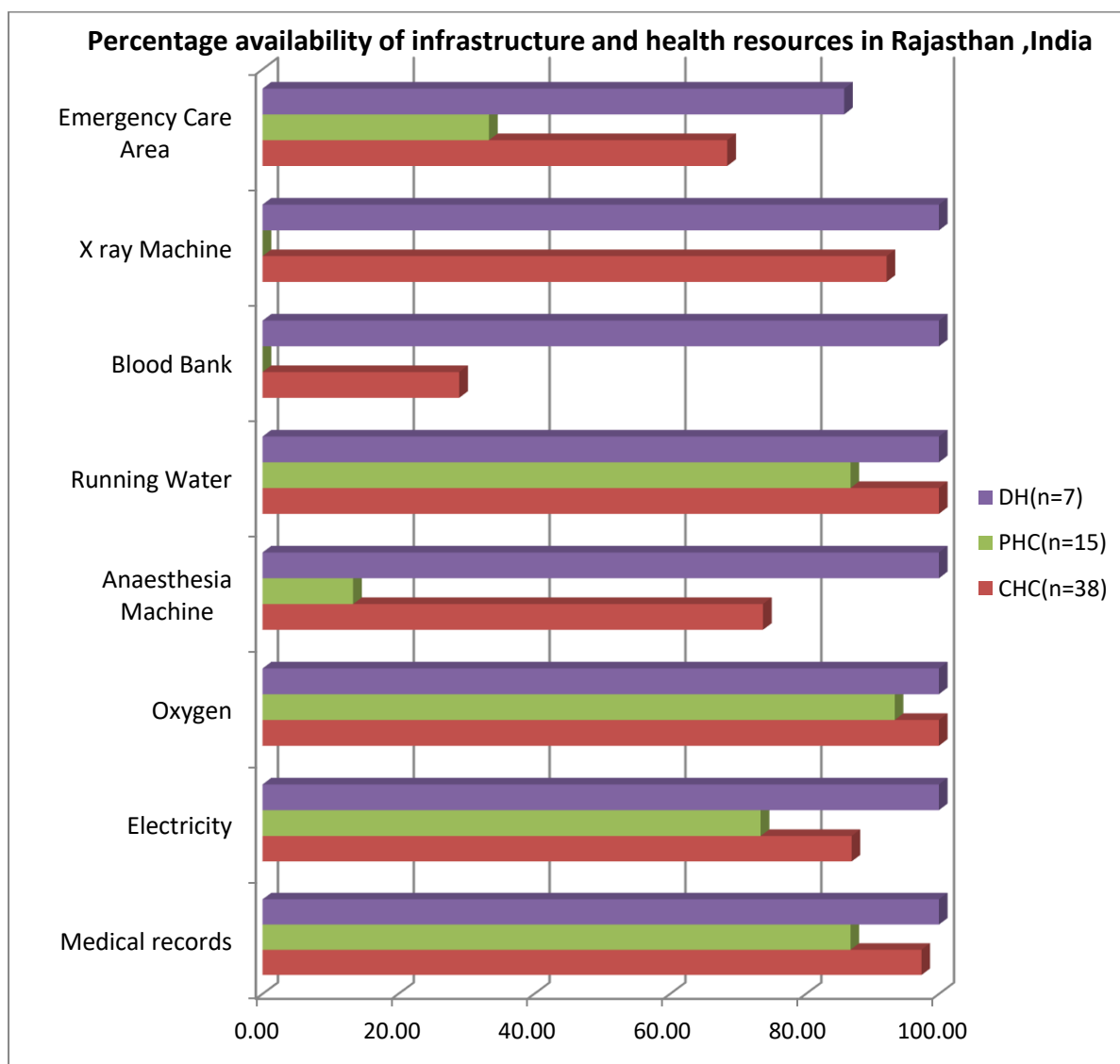
The demographic details of the populations served by these facilities are expressed in Table 3 .The data is mentioned across three categories as shown . Rajasthan being one of the driest regions in India, state reaches the 45 degree Celsius mark during the summer months. On an average patients have to travel 35 kilometres to assess surgical services .Even today people use

camel carts to reach the healthcare facilities which makes the travel even worse when the patient is critical as a result patient dies or some complications occur.

Table 3:Demographic Data of Health Facilities			
Facility type	PHC(n=15)	CHC(n=38)	DH(n=7)
Average population served	23812	60615	3548924
Average number of admissions in one year	899	6099	54765
Average number of outpatients per year	12032	50491	262965
Average Number of beds	8	35	379
Total number of functioning operating rooms	11	15	15
Average patient travel to get to health facility in km	9	20	46
Mean distance patient travel to access surgical services if referred in km	20	45	41

A total of 2839 health workers were employed across 60 health facilities covered in which 62 % were paramedics or midwives. PHCs across the districts were seen having the worst situation as they were lacking Gynaecologists/Obstetricians ,Across 15 PHCs observed there were only 6 surgeons available .38 CHCs monitored were having only 20 Gynaecologists ,29 Surgeons and 9 anaesthesiologist physicians which is quite less with respect to number of population catered by CHCs is high. By screening Table 4 Analysis of the human resources we can easily find out that there is lack of human resources at every level according to the population served by the facilities.

Table 4: Total Human Resources across the different levels of healthcare facilities			
Type	PHCs(n=15)	CHCs(n=38)	DH (n=7)
Surgeons (Qualified)	6	29	48
Anaesthesiologist physicians(Qualified)	0	9	20
Obstetricians/Gynaecologists(Qualified)	0	20	39
General doctors providing surgery(including obstetrics)	10	32	30
General doctors providing anaesthesia	0	5	6
Nurses/Clinical officers providing anaesthesia	6	79	647
Clinical officers providing surgery(including obstetrics)	10	10	58
Paramedics	146	570	1018



Percentage availability of infrastructure and health resources in Rajasthan ,India

Bar graph depicts the key infrastructure elements available in health facilities assessed. Medical records were maintained in all facilities but it had some loops in Primary Health Centres due to unavailability of staff creating an average of 95 % availability .Electricity was available at District Health centres but was not available at 4(73.33%) primary health centres. It was a good indicator that oxygen was available at every level of health facilities providing 98.33 percent coverage. Anaesthesia machine was available at Primary Health centres but was non functional giving coverage of only 13.33%.Community health centres was also seen lacking in this arena with 73.33% availability. Running water was available at district health facilities and community health centres but was a problem at primary health centres. Primary health centres pay females to fill water in the pots to fill in the tanks from the wells far away as there was no water supply line .Blood banks was seen only at district health facilities and both the lower level facilities was seen lacking .On an average the coverage was only 43.33 %. X ray machines was available at community health facilities and district health facilities but was missing at primary health centres giving an output of 70%.Emergency care area was seen missing at every level of health facility even at District health facility with 85.71%, Community health facility with 68.42% and Primary health centres with 33.33%,this area

is specially created to perform life saving measures in life threatening situations and the unavailability is creating a missing link of 39%.

Table 5 represents the percentages at which DH,CHCs & PHCs provide interventions and refer procedures. Among the surgical interventions listed in the survey ,11 was performed at PHCs being Resuscitation(20%), Cricothyroidotomy(26%), Chest tube insertion(26.6%), Removal of foreign body(13%), Incision and drainage of abscess(73.33%), suturing(40%),wound debridement(80%), Dilation and curettage(13.33%), Vasectomy(66.6%), Male circumcision(13.33%) and Cataract surgery(66.67%).In PHCs days are fixed for camps for providing cataract surgery and vasectomy .almost 100 % referred the cases to the level above for better treatment. Referrals were seen due to lack of skills ,Lack of non functional equipment or lack of supplies as well .It was seen that patients were referred due to all the reasons .

CHCs on the other were covering only 50 % of the procedures mentioned in the survey. The services offered were Resuscitation(21%), Cricothyroidotomy(21%), Chest tube insertion(63%), Removal of foreign body(84%),Acute burn management(89.47%), Incision and drainage of abscess(89%), suturing(92%),wound debridement(100%),Caesarean section (13.16%), Dilation and curettage(84.21%),Obstetric fistula repair (65.79%), Vasectomy(100%), Male circumcision(13%),Closed treatment of fracture(21%) and Cataract surgery(100%).All the community health facilities referred the patients for procedures mostly due to lack of drugs and supplies(32.74%),lack of skills(44.22%) and due to lack of non functional equipment(23%) .

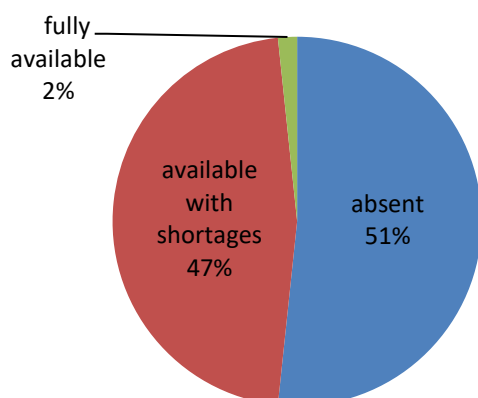
District Hospitals undergo all the procedures, even when they were provided, they were referred as well at times. The procedures that were available at some district health facilities were Biopsy(28.5%), Appendectomy(42.8%), Hernia repair(28.5%), Cystostomy (28.5%),Neonatal surgery(57%), Cleft Lip Repair(57%), Contracture release(42%), Open treatment of fracture(42%), Amputation(72%), All four anaesthesia procedures(32%).

Table 5: Interventions offered ,referral for procedures and reasons for referral at different levels of healthcare facilities					
PHC(n=15)	Percentage That provide procedure	Percentage that refer	Due to Lack of		
CHC(n=38)			Skills	Non Functional Equipment	Drugs/ Supplies
DH(n=7)					
Resuscitation	20.00	26.67	13.33	13.33	20.00
	21.05	34.21	23.68	34.21	28.95
	100.00	14.29	0.00	0.00	14.29
Cricothyroidotomy	26.67	13.33	46.67	33.33	20.00
	21.05	34.21	10.53	15.79	39.47
	100.00	57.14	57.14	42.86	28.57
Chest Tube Insertion	26.67	46.67	13.33	13.33	20.00
	63.16	36.84	23.68	34.21	28.95
	100.00	0.00	0.00	0.00	0.00
Removal of Foreign Body	13.33	73.33	33.33	40.00	26.67

	84.21	63.16	28.95	31.58	36.84
	100.00	0.00	0.00	0.00	0.00
Acute Burn Management	0.00	100.00	80.00	26.67	13.33
	89.47	100.00	84.21	31.58	39.47
	100.00	57.14	42.86	28.57	28.57
Incision and Drainage of Abscess	73.33	26.67	20.00	26.67	13.33
	89.47	100.00	84.21	31.58	39.47
	100.00	57.14	42.86	28.57	28.57
Suturing	40.00	100.00	73.33	66.67	53.33
	92.11	100.00	39.47	42.11	34.21
	100.00	42.86	42.86	28.57	57.14
Wound Debridement	80.00	60.00	66.67	73.33	0.00
	100.00	89.47	39.47	42.11	39.47
	100.00	28.57	14.29	28.57	0.00
Caesarean Section	0.00	100.00	666.67	33.33	86.67
	13.16	89.47	39.47	31.58	42.11
	100.00	71.43	71.43	57.14	57.14
Dilation and Curettage	13.33	93.33	6.67	33.33	73.33
	84.21	89.47	31.58	36.84	39.47
	100.00	85.71	57.14	14.29	85.71
Obstetric fistula repair	0.00	100.00	86.67	80.00	73.33
	65.79	89.47	28.95	31.58	42.11
	100.00	71.43	57.14	71.43	85.71
Tubal ligation/Vasectomy	66.67	73.33	60.00	66.67	80.00
	100.00	39.47	26.32	39.47	47.37
	100.00	57.14	71.43	0.00	28.57
Biopsy	0.00	100.00	80.00	73.33	86.67
	0.00	89.47	94.74	81.58	89.47
	28.57	85.71	57.14	57.14	57.14
Appendectomy	0.00	100.00	93.33	40.00	33.33
	0.00	100.00	94.74	21.05	31.58
	42.86	71.43	57.14	28.57	14.29
Hernia repair	0.00	100.00	93.33	0.00	80.00
	0.00	100.00	89.47	7.89	50.00
	28.57	85.71	85.71	14.29	28.57
Cystostomy	0.00	100.00	80.00	13.33	86.67
	0.00	100.00	94.74	7.89	50.00
	28.57	85.71	85.71	14.29	28.57
Male Circumcision	13.33	100.00	66.67	13.33	93.33
	13.16	89.47	89.47	28.95	50.00
	100.00	57.14	71.43	42.86	71.43
Neonatal Surgery	0.00	100.00	93.33	40.00	93.33
	0.00	100.00	89.47	78.95	47.37
	57.14	85.71	57.14	42.86	85.71
Cleft Lip Repair	0.00	100.00	80.00	66.67	93.33
	0.00	100.00	65.79	42.11	94.74
	57.14	100.00	71.43	85.71	42.86
Club Foot repair	0.00	100.00	93.33	73.33	86.67
	0.00	100.00	26.32	39.47	47.37

	100.00	85.71	100.00	0.00	85.71
	0.00	100.00	80.00	73.33	86.67
	0.00	100.00	94.74	81.58	89.47
Contracture Release/skin grafting	42.86	71.43	57.14	57.14	57.14
	0.00	100.00	93.33	46.67	46.67
	21.05	100.00	97.37	31.58	89.47
Closed treatment of fracture	85.71	85.71	42.86	42.86	57.14
	0.00	100.00	93.33	0.00	80.00
	0.00	100.00	94.74	5.26	50.00
Treatment of open fracture	42.86	85.71	71.43	42.86	42.86
	0.00	100.00	86.67	40.00	60.00
	0.00	100.00	47.37	36.84	31.58
Drainage of osteomyelitis/septic arthritis	100.00	85.71	57.14	14.29	85.71
	0.00	100.00	93.33	93.33	93.33
	0.00	100.00	89.47	71.05	57.89
Amputation	71.43	100.00	85.71	57.14	71.43
	66.67	73.33	60.00	66.67	80.00
	100.00	39.47	26.32	39.47	47.37
Cataract surgery	100.00	57.14	71.43	0.00	28.57
	0.00	100.00	80.00	73.33	86.67
	0.00	100.00	94.74	81.58	89.47
Regional anaesthesia blocks	28.57	85.71	57.14	57.14	57.14
	0.00	100.00	93.33	40.00	33.33
	0.00	100.00	94.74	21.05	31.58
Spinal anaesthesia	42.86	71.43	57.14	28.57	14.29
	0.00	100.00	93.33	0.00	80.00
	0.00	100.00	89.47	7.89	50.00
Ketamine intravenous anaesthesia	28.57	85.71	85.71	14.29	28.57
	0.00	100.00	80.00	13.33	86.67
	0.00	100.00	94.74	7.89	50.00
General anaesthesia inhalational	28.57	85.71	85.71	14.29	28.57

Availability of splints for arms and legs



In Rajasthan splints for arms and legs was available only at 2% of the health care facilities 47% was available with shortages and 51% was absent, Splints are devices that enable people with motor disabilities to walk and thereby remain mobile. Timely access to supports prevent disability. Congenital conditions like clubfoot can be treated easily with the help of surgical intervention and splints. Rajasthan having a history of designing Cheapest Prosthesis Jaipur Foot for mobilizing people with amputation and treating polio patients with callipers(splints), it was very unfortunate to know that in all the health facilities only 2% availability is there.

Table 6: Emergency and surgical care equipment and supplies

Table 6: Emergency and surgical care equipment and supplies			
PHC(n=15)			
CHC(n=38)			
DH(n=7)			
Resources	Absent	Available with frequent shortages or difficulties	Fully available
Resuscitator bag valve and mask(adult)	40.0	33.3	26.7
	13.2	21.1	65.8
	0.0	14.3	85.7
Resuscitator bag valve and mask(pediatric)	60.0	26.7	13.3
	13.2	18.4	68.4
	0.0	14.3	85.7
Stethoscope	6.7	0.0	93.3
	0.0	18.4	81.6
	0.0	0.0	100.0
Suction pump	26.7	6.7	66.7
	0.0	21.1	78.9
	0.0	0.0	100.0
Blood pressure measuring equipment	0.0	0.0	100.0
	0.0	0.0	100.0
	0.0	0.0	100.0
Thermometer	0.0	0.0	100.0
	0.0	0.0	100.0
	0.0	0.0	100.0
Scalpel Blade	26.7	0.0	73.3
	0.0	15.8	84.2
	0.0	0.0	100.0
Retractor	60.0	20.0	20.0
	13.2	18.4	68.4
	0.0	0.0	100.0
Scissors	13.3	0.0	86.7
	0.0	18.4	81.6
	0.0	0.0	100.0
Oropharyngeal Airway(Adult)	80.0	0.0	20.0
	18.4	23.7	57.9
	14.3	0.0	85.7
Oropharyngeal Airway(Pediatric)	80.0	6.7	13.3
	5.3	28.9	65.8
	14.3	0.0	85.7
Gloves(Examination)	0.0	0.0	100.0

	0.0	0.0	100.0
	0.0	0.0	100.0
	26.7	46.7	26.7
Gloves(Sterile)	0.0	18.4	81.6
	0.0	0.0	100.0
	0.0	0.0	100.0
Needle Holder	0.0	13.2	86.8
	0.0	0.0	100.0
	0.0	0.0	100.0
Vaginal Speculum	13.3	0.0	86.7
	0.0	10.5	89.5
	0.0	0.0	100.0
Nasogastric tubes	60.0	6.7	33.3
	5.3	28.9	65.8
	0.0	28.6	71.4
Light source(lamp or flashlight)	53.3	0.0	46.7
	0.0	0.0	100.0
	0.0	28.6	71.4
Intravenous fluid infusion set	6.7	0.0	93.3
	0.0	23.7	76.3
	0.0	28.6	71.4
Intravenous cannulas/scalp vein infusion set	13.3	53.3	33.3
	0.0	21.1	78.9
	0.0	28.6	71.4
Syringes with needles(disposable)	0.0	0.0	100.0
	0.0	18.4	81.6
	0.0	14.3	85.7
Sharp disposable container	6.7	0.0	93.3
	0.0	21.1	78.9
	0.0	14.3	85.7
Tourniquet	40.0	46.7	13.3
	23.7	13.2	63.2
	0.0	85.7	14.3
Needle and sutures	0.0	0.0	100.0
	0.0	21.1	78.9
	14.3	0.0	85.7
Urinary catheters	40.0	60.0	0.0
	7.9	18.4	73.7
	0.0	0.0	100.0
Waste disposal containers	20.0	0.0	80.0
	2.6	15.8	81.6
	0.0	0.0	100.0
Face Masks	20.0	13.3	66.7
	5.3	23.7	71.1
	0.0	0.0	100.0
Eye protection	66.7	26.7	6.7
	36.8	21.1	42.1
	0.0	0.0	100.0

Protective gowns	53.3	46.7	0.0
	2.6	13.2	84.2
	0.0	0.0	100.0
Soap	6.7	26.7	66.7
	0.0	0.0	100.0
	0.0	0.0	100.0

Table 6 depicts the availability of capital outlays, In PHCs only basic equipments were fully available ; Thermometer(93.3%), Blood Pressure machine(100%), Thermometer(100%), Scalpel blade(73%), Scissors(86%), Needle holder(100%), Vaginal speculum(86%), Intravenous cannulas (71%) , Sharps disposable(78%), Waste disposable containers(80%), Face masks(66%), Soap66%).It was seen that soap like basic amenity was lacking in certain Primary health centres. All PHCs have intermittent access to soap, protective gowns, eye protection, urinary catheters, gloves sterile, tourniquet, light source, nasogastric tubes , oropharyngeal airways, suction pump and resuscitation bag.

In CHCs there was frequent shortage of certain supplies; soap, protective gowns, eye protection, urinary catheters, tourniquet, oropharyngeal airway, suction pump and resuscitation bag .

In District Hospitals mostly the facilities were available but sometimes they also faced difficulties for supplies for tourniquet, resuscitation bag and oropharyngeal airway.

Discussion

This paper provides a clear picture of surgical care systems in Rajasthan at all levels, most of the population of Rajasthan lives in rural areas. While analyzing the data many facts unfolded , one being the lack of human resources in rural areas, the main reason for lack of professionals is living conditions of Rajasthan, but nobody cares about the hardship faced by the patients in rural Rajasthan.

This study shows us the difference between the surgical capacity of Primary health centres, community health centres and district hospitals, despite their different mandates. PHCs should be focused more in the hierarchy, although it is unrealistic to expect PHCs to undertake complex procedures but they should have the access to basic procedures so that timely access to services could be provided to the patients. This is particularly important to provide access at the nearest health care facility because of difficulty in travelling due to uneven terrain, distances between the health facilities, unavailability of appropriate vehicle and very hot temperature. Thus it is a challenge to develop capacity and self sufficiency in the remotest regions of Rajasthan.It is paramount to develop strength of the PHCs and first referral facilities such as CHCs that are relatively more accessible for the rural population.

Rajasthan is also part of National Rural Health Mission(NRHM) Launched by Government Of India to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups. The thrust of the mission is on establishing a fully functional, community owned, decentralized health delivery system with inter-sectoral convergence at all levels. The NRHM is making substantial growth with Rajasthan state Health Society .By working together they can address the issues at both national and state level and furthermore can help met the unmet demand for essential surgical care services providing strength to the existing health care system.

Conclusion

The result of this WHO state survey demonstrate significant gaps, notably in resuscitation at all lower level health facilities and absence of obstetric procedures even at district hospitals, in essential and emergency surgical capacity,including human resources, equipment and infrastructure, across all levels of health facilities in Rajasthan. The states, technical working group on Emergency and Essential Surgical Care, other Government bodies and stakeholders can utilize this information in forming evidence-based plans and policy for resource allocation decisions towards universal access to essential surgical care.