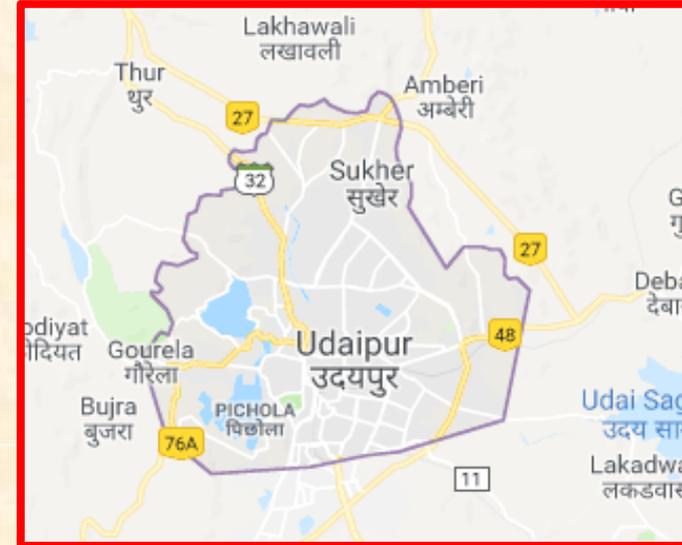




# Purview

- **Aim**
- **Objectives**
- **Methodology & Procedure**
- **Observations & Analysis**
- **Key Findings & Recommendations**



# Aim

- To assess the level of Disaster Preparedness in Government Health Facilities measured by Functional Capacity: A Comparison between Udaipur and Banswara Districts (Rajasthan)

# Objectives

- Analyze from perspective of an Health administrator :
  - **To assess and compare the functional safety and capacity status in government health facilities in Udaipur and Banswara in response to disasters**
  - **To identify potential capabilities and recommend safety strategies for health care facilities for making their response effective and efficient in times of emergencies**

# Methodology

- **Study Area** Government Health Facilities (District Hospital and Community Health Centre(CHC)) at Udaipur and Banswara districts respectively in Rajasthan
- **Study Design** Cross sectional descriptive study design
- **Study Period** 01 Feb to 30 Apr 2019 in three phases
- **Study Population** Government Health Facilities (District Hospital and one Community Health Centre (CHC)) at Udaipur and Banswara districts respectively in Rajasthan

# Methodology

- **Sample** Four government health facilities (DH & CHC) were assessed in both the districts based on the population of the area
- **Study Tool** WHO Hospital Safety Index checklist duly modified has been used. Questions/elements related to functional safety in the checklist have been assessed
- **Sampling Technique** Non Probability Purposive sampling technique



## Observations & Analysis



# Scoring Pattern

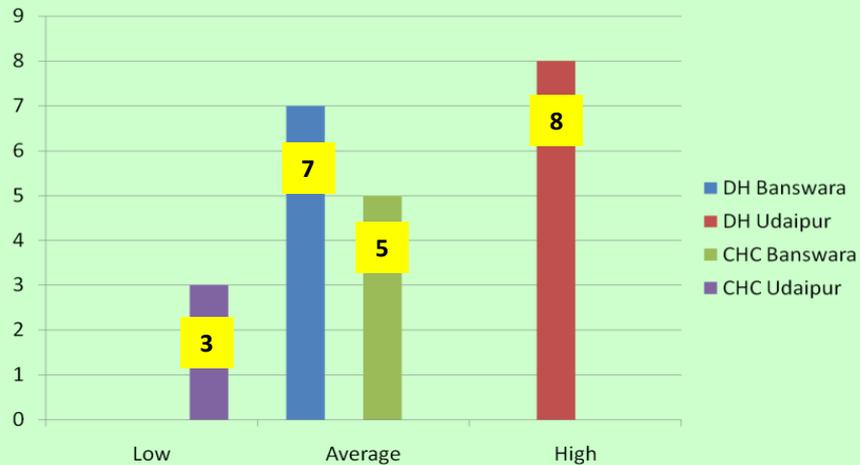
## (Safety Based on Functional Capacity of Hospital (HCF))

### Scoring Pattern (Safety Based on Functional Capacity of Hospital (HCF))

- **Inadequate (Low)** : 0- 3 points
- **At Risk (Average)** : 4 -7 points
- **Functional (High)** : 8-10 points
- Hospital Safety Index Score (duly modified) based on functional capacity necessitates under mentioned measures
- **Inadequate (Low) C = 0 – 0.39 ( upto 39%)** Necessary and urgent measures must be taken immediately, as the health care facility's current level of safety is insufficient to protect patients and staff during and after a disaster or emergency
- **At Risk (Average) B = 0.40 – 0.79 (40 - 79%)** Short-term measures are required, as the health care facility's current level of safety could potentially put patients, staff and the facility's ability to function at risk during or after a disaster or emergency
- **Functional (High) A = 0.80 – 1 (80- 100%)** Although it is likely that the hospital (health care facility) will continue to function in emergency situations, it is recommended that measures continue to be taken in the medium and long term to reduce risk and incorporate mitigation measures particularly for overall functional safety

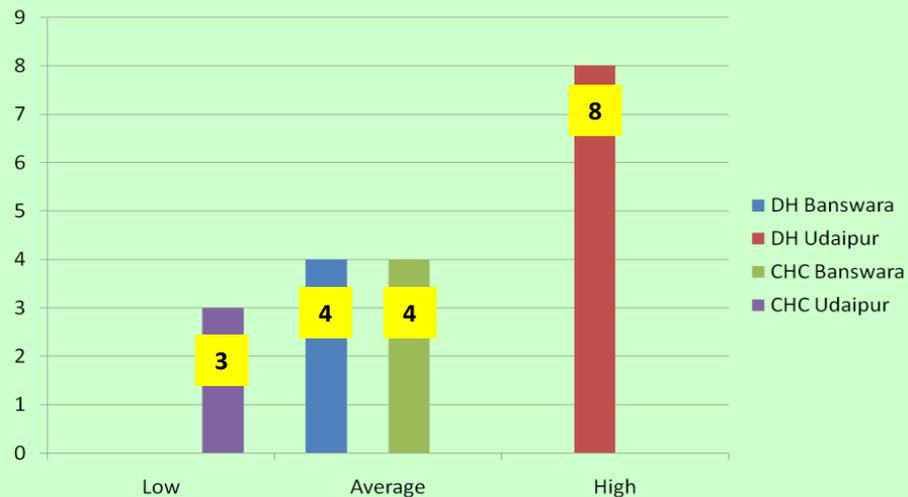
# Organization Of The Hospital Disaster Committee And The Emergency Operations Center

## Committee Has Been Formally Established To Respond To Major Emergencies Or Disasters



- DH Banswara and CHC Udaipur & Banswara needs to have the existing committee functioning to ensure high level of preparedness
- Terms of reference of the committee exists in both the DH

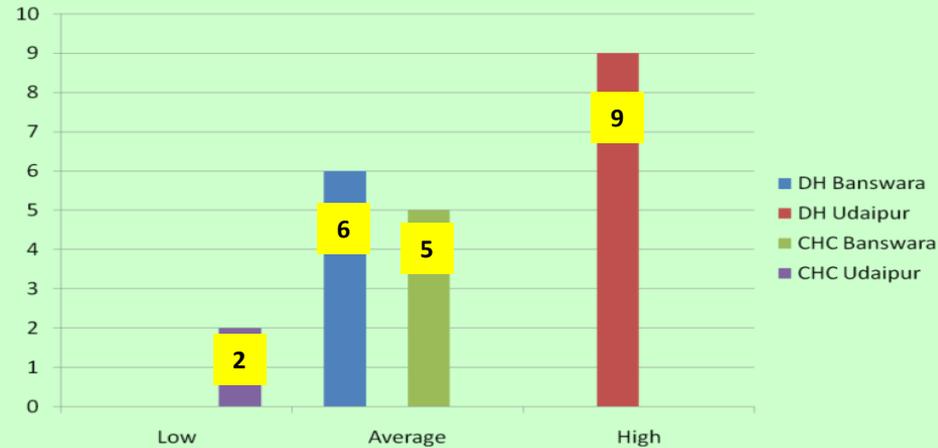
## Committee Membership Is Multi-Disciplinary



- DH Banswara and CHC Udaipur & Banswara needs to increase the number of disciplines represented in the disaster committee
- Essential to have a diverse representation and a multi disciplinary committee

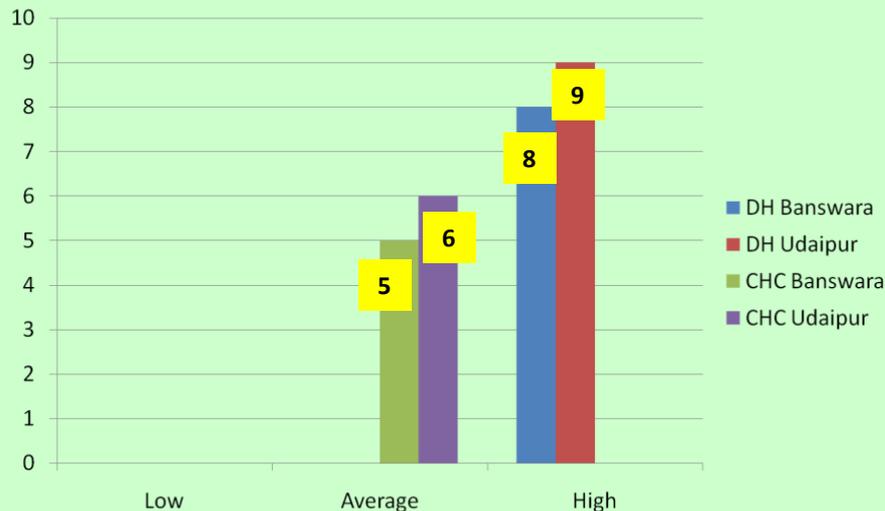
# Organization Of The Hospital Disaster Committee And The Emergency Operations Center

## Each Member is Aware of His/Her Specific Responsibilities



- Both DH Banswara and CHC Udaipur should ensure that the respective members are aware of their responsibilities assigned
- The committee needs to be effective and efficient in their tasking

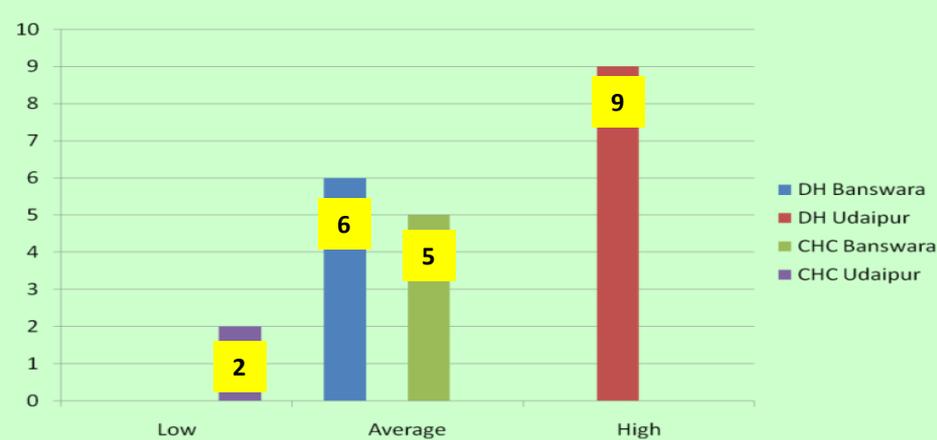
## Space Is Designated For The Hospital Emergency Operations Centre



- Both CHC Banswara and DH Udaipur should ensure that the space is designated for the hospital EOC

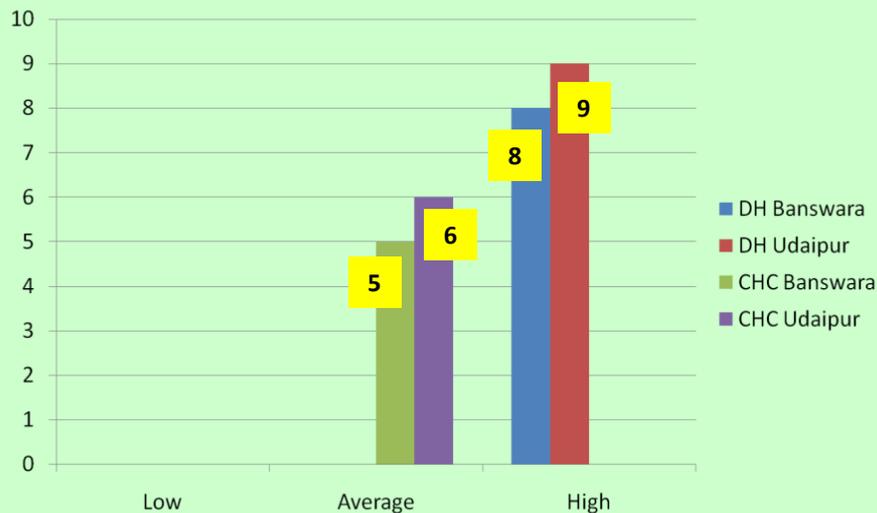
# Organization Of The Hospital Disaster Committee And The Emergency Operations Center

## Each Member is Aware of His/Her Specific Responsibilities



- Both DH Banswara and CHC Udaipur & Banswara should ensure that the respective members are aware of their responsibilities assigned
- The committee needs to be effective and efficient in their tasking

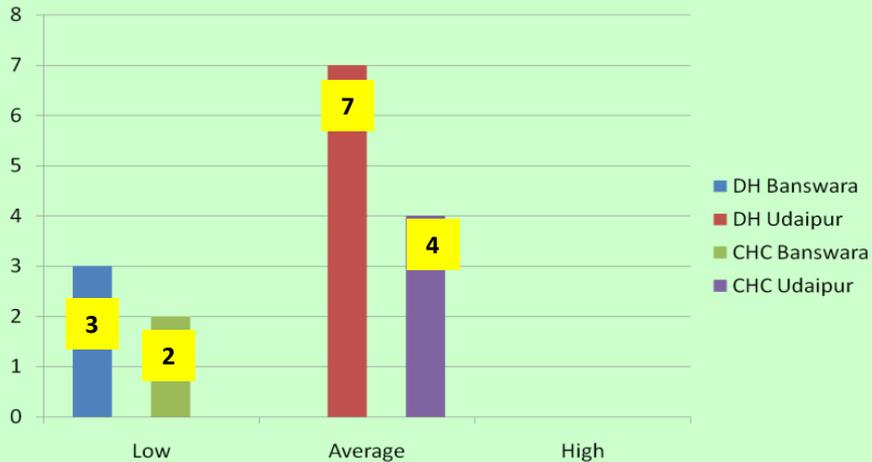
## Space Is Designated For The Hospital Emergency Operations Centre



- Both CHC Banswara and CHC Udaipur should ensure that the space is designated for the hospital EOC

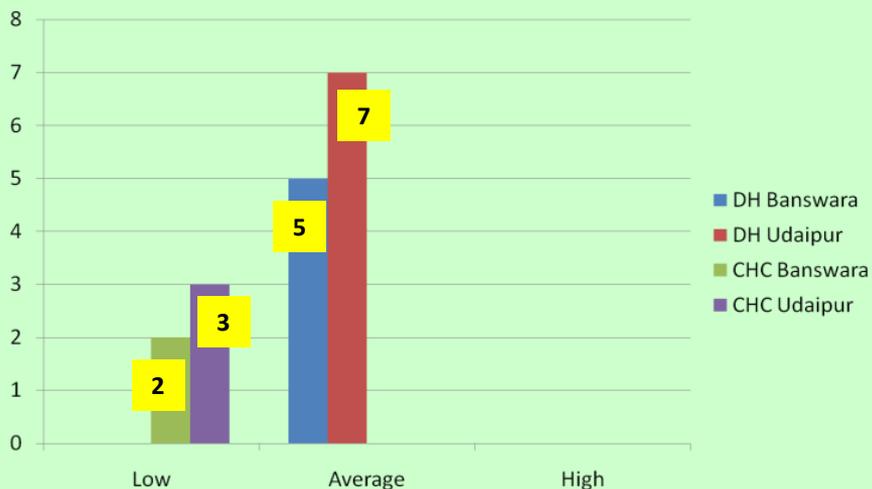
# Organization Of The Hospital Disaster Committee And The Emergency Operations Center

## The EOC is in a protected and safe location



- Both DH Banswara and CHCs should ensure that EOC is in protected and safe location

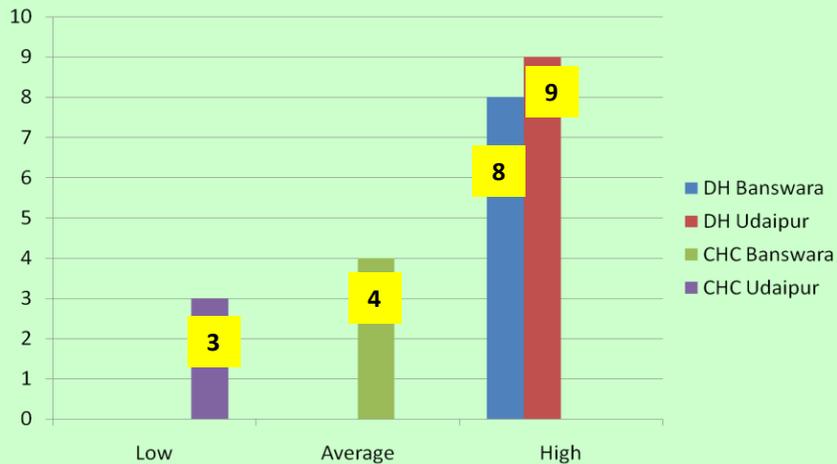
## The EOC has a computer system and computers



- Both CHC Banswara and CHC Udaipur should ensure that EOC has computer system and adequate numbers of computers

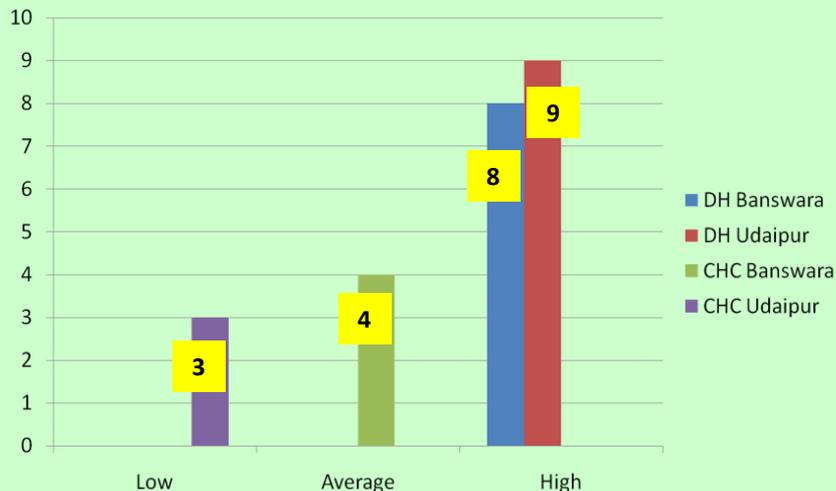
# Organization Of The Hospital Disaster Committee And The Emergency Operations Center

## The EOC Has An Alternative Communications System



- Both CHC Banswara and CHC Udaipur should ensure that the EOC has an alternative communications system for redundancy

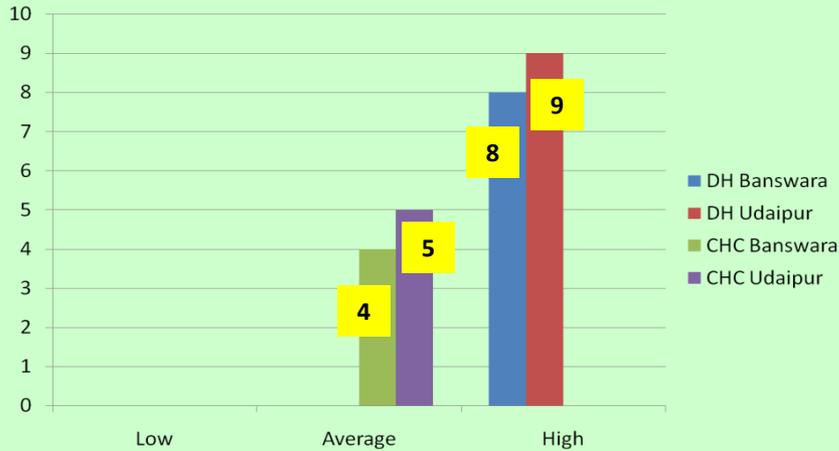
## The EOC Has Adequate Equipment And Furnishings



- CHC Udaipur should ensure that EOC has adequate equipment and furnishings

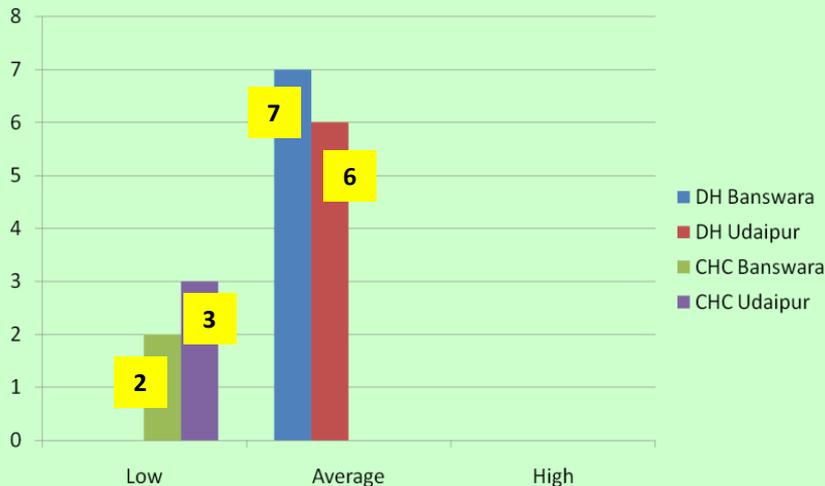
# Organization Of The Hospital Disaster Committee And The Emergency Operations Center

## An Up-to-date Telephone Directory Is Available In The EOC



- Both CHC Banswara and CHC Udaipur should ensure that the up-to-date telephone directory is available in the EOC

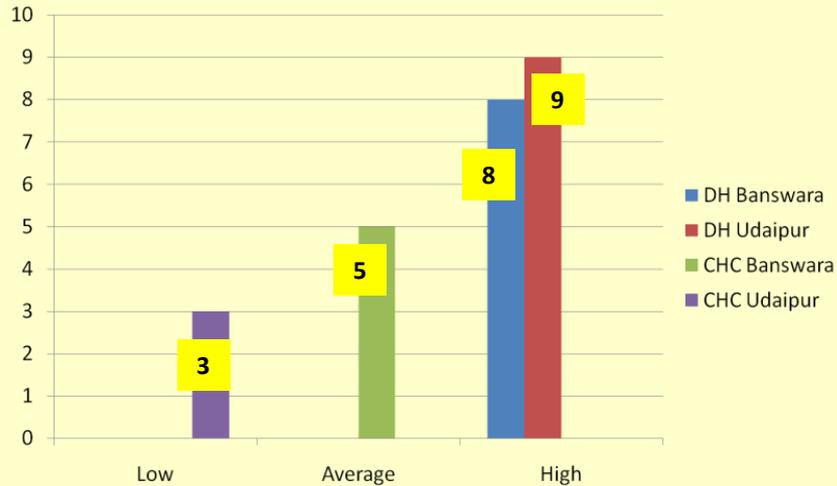
## "Action Cards" Available For All Personnel



- Both CHC Banswara and CHC Udaipur should ensure that "Action Cards" available for all personnel

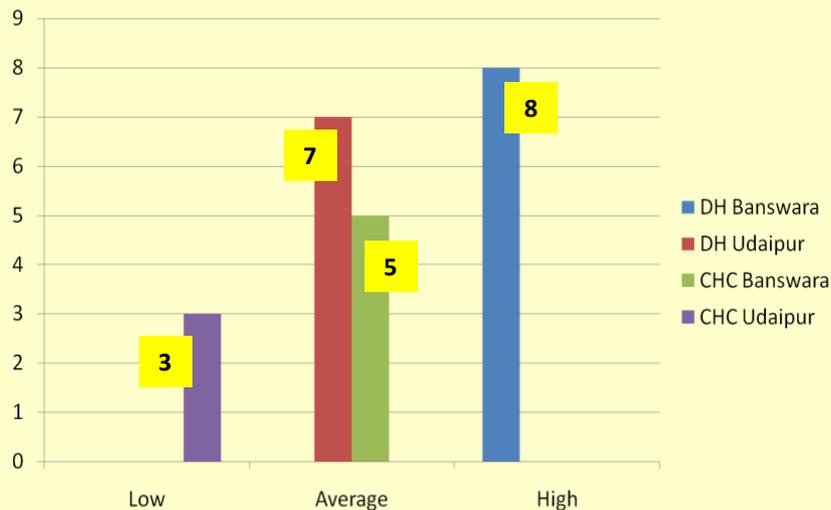
# Operational Plan For Internal Or External Disasters

## Strengthen Essential Hospital Services



Both CHC Banswara and CHC Udaipur should ensure that they strengthen essential hospital services

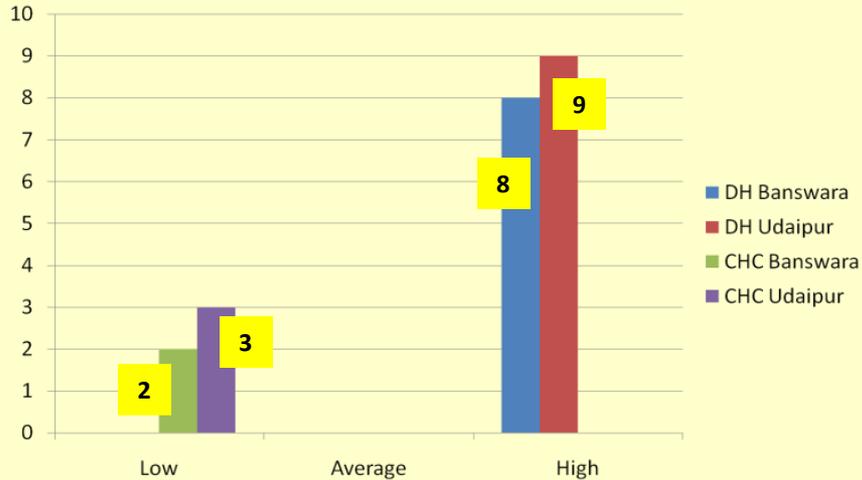
## Procedures To Activate And Deactivate The Plan



- Both DH Udaipur and CHC Banswara should ensure that the Procedures exist to activate and deactivate the plan

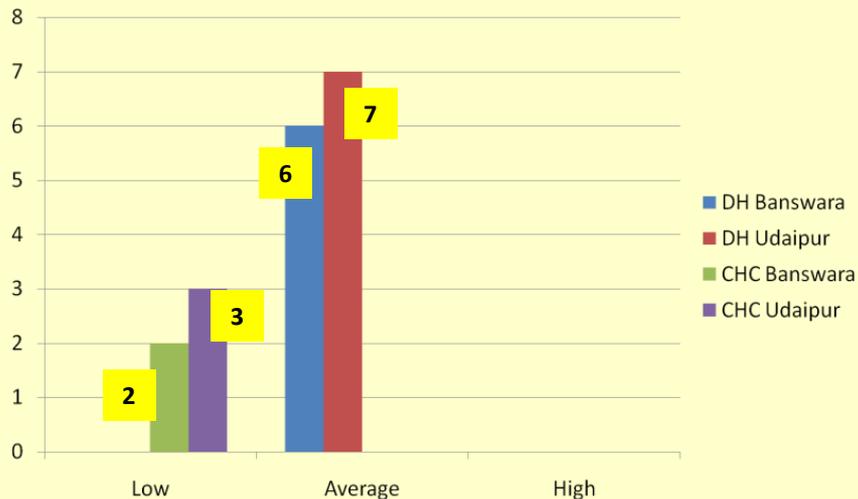
# Operational Plan For Internal Or External Disasters

## Special Administrative Procedures For Disasters



Both CHC Banswara and CHC Udaipur should ensure that Special administrative procedures for disasters are put in place and functional

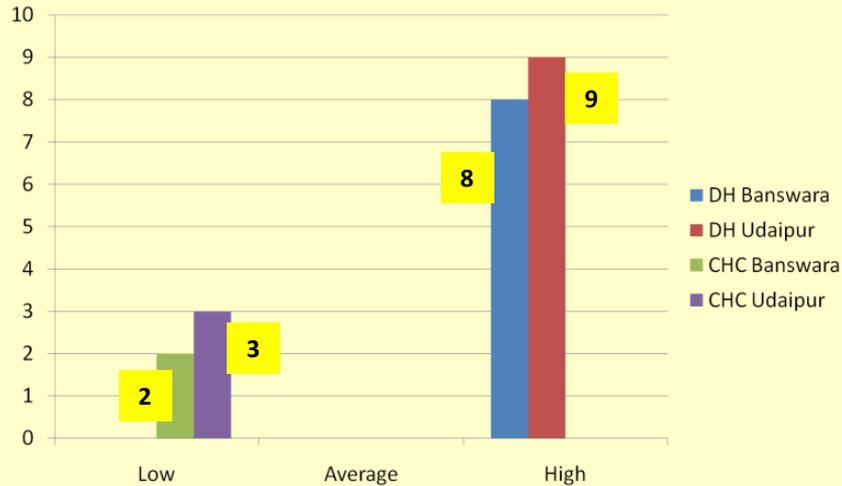
## Financial Resources For Emergencies Are Budgeted And Guaranteed



- Both DH Banswara and DH Udaipur including both CHCs should ensure that Financial resources for emergencies are budgeted and guaranteed to the health care facilities

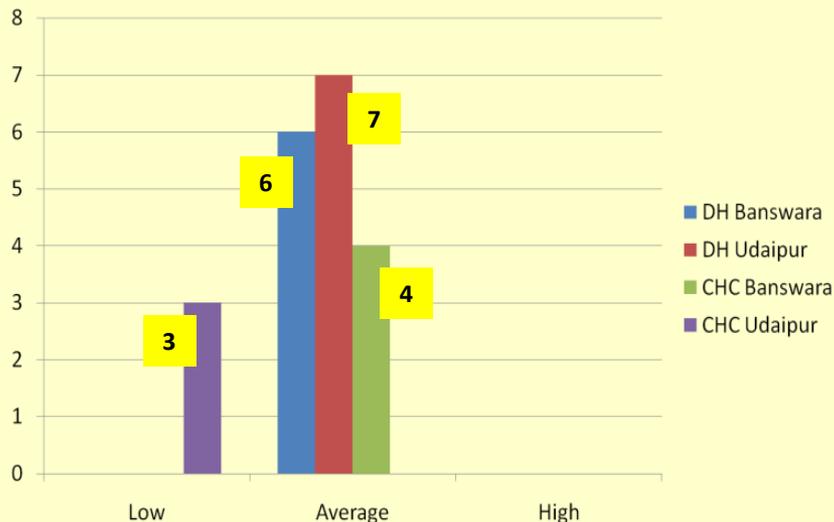
# Operational Plan For Internal Or External Disasters

## Procedures For Expanding Usable Space, Including The Availability Of Extra Beds



Both CHC Banswara and CHC Udaipur should ensure that the Procedures for expanding usable space, including the availability of extra beds are put in place

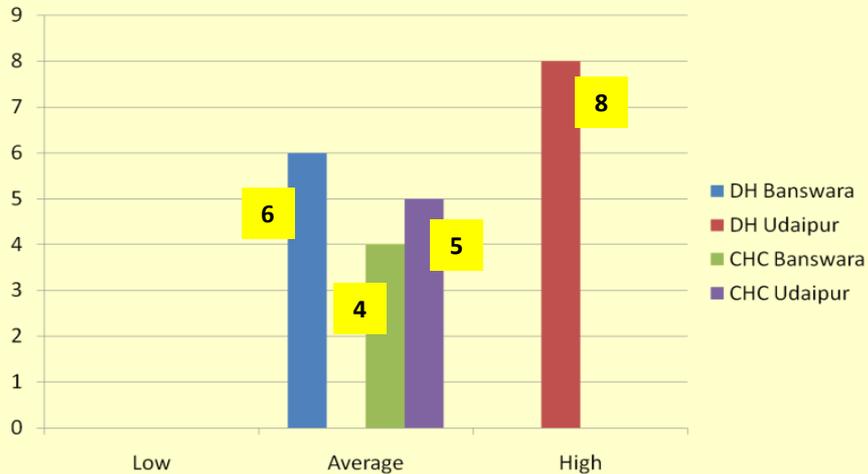
## Procedures To Protect Patients' Medical Records



- Both DH Banswara and DH Udaipur including CHCs should ensure Procedures to protect patients' medical records are ensured

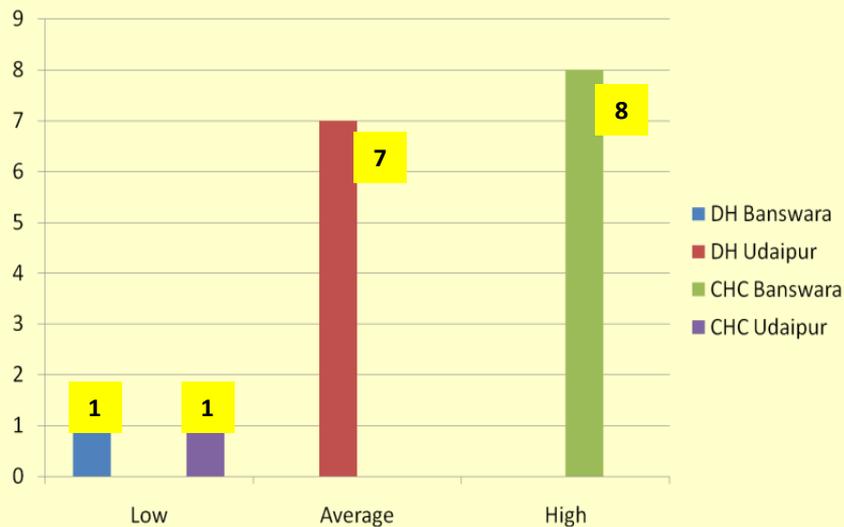
# Operational Plan For Internal Or External Disasters

## Regular Safety Inspections Are Conducted By The Appropriate Authority



Both DH Banswara and CHC Udaipur and Banswara should ensure that Regular safety inspections are conducted by the appropriate authority

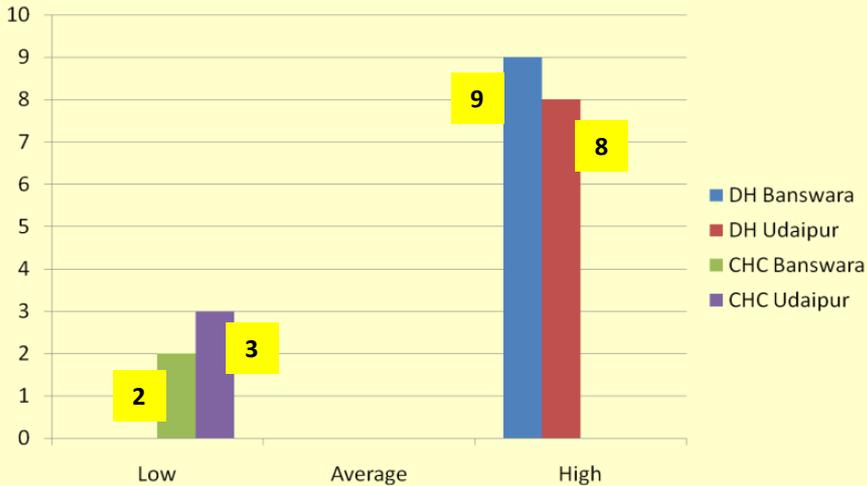
## Procedures For Preparing Sites For Temporary Placement Of Dead Bodies And For Forensic Medicine



- DH Udaipur should ensure that the Procedures for preparing sites for temporary placement of dead bodies and for forensic medicine is put in place

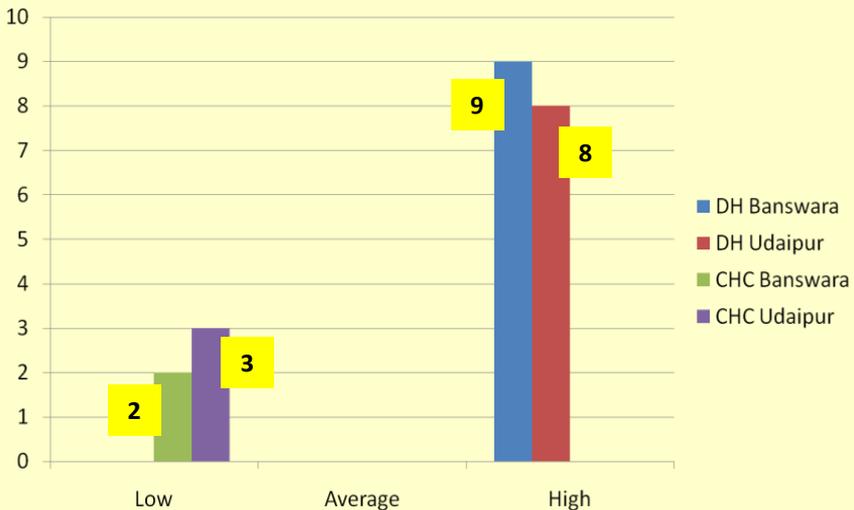
# Operational Plan For Internal Or External Disasters

## Transport And Logistics Support



Both CHC Banswara and CHC Udaipur should ensure that the Transport and logistics support is catered for properly

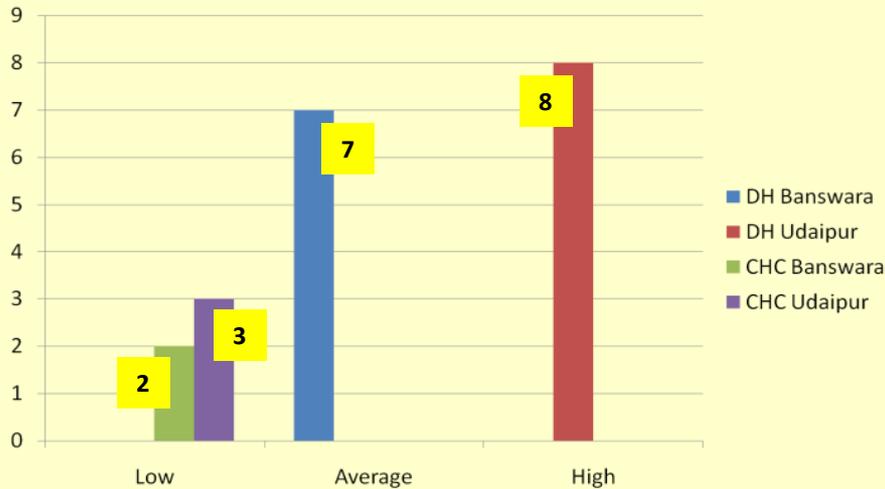
## Food Rations For Hospital Staff During The Emergency



Both CHC Banswara and CHC Udaipur should ensure that Food rations for hospital staff during the emergency is adequately catered for

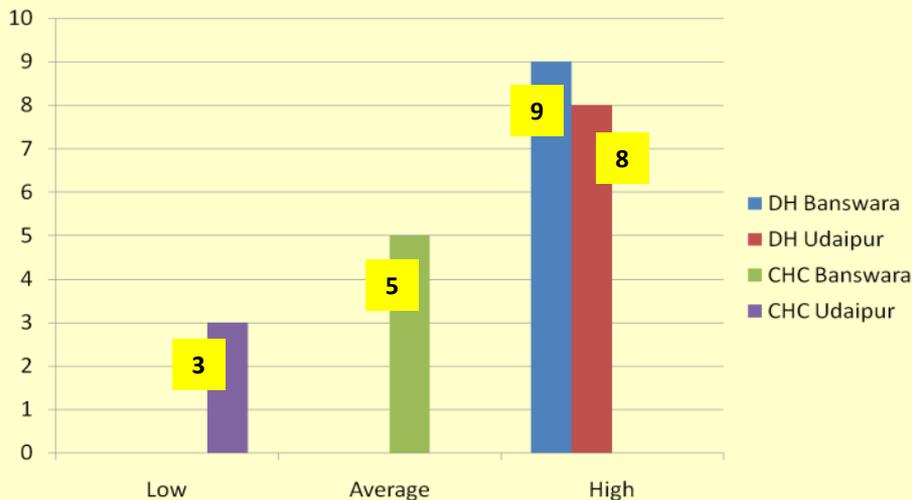
# Operational Plan For Internal Or External Disasters

## Cooperative Arrangements With Local Emergency Plan



Both CHC Banswara and CHC Udaipur should ensure that the Cooperative arrangements with local emergency plan responsibilities be assigned

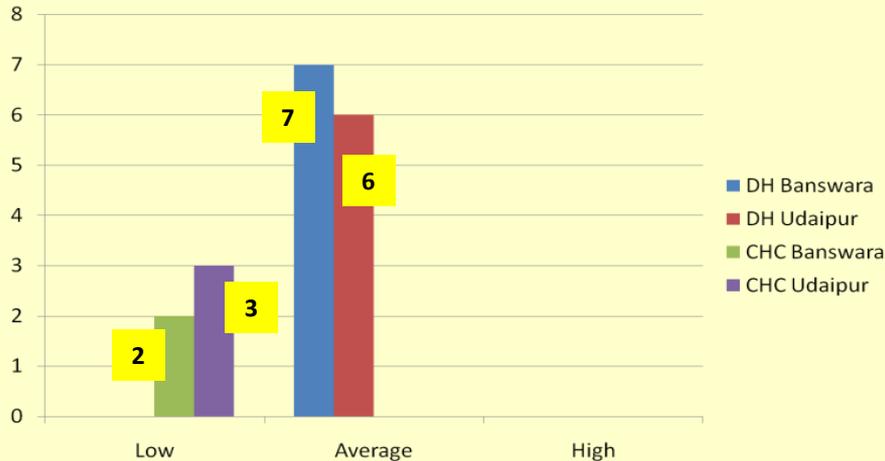
## Procedures For Communicating With The Public And Media



Both CHC Banswara and CHC Udaipur should ensure Procedures for communicating with the public and media

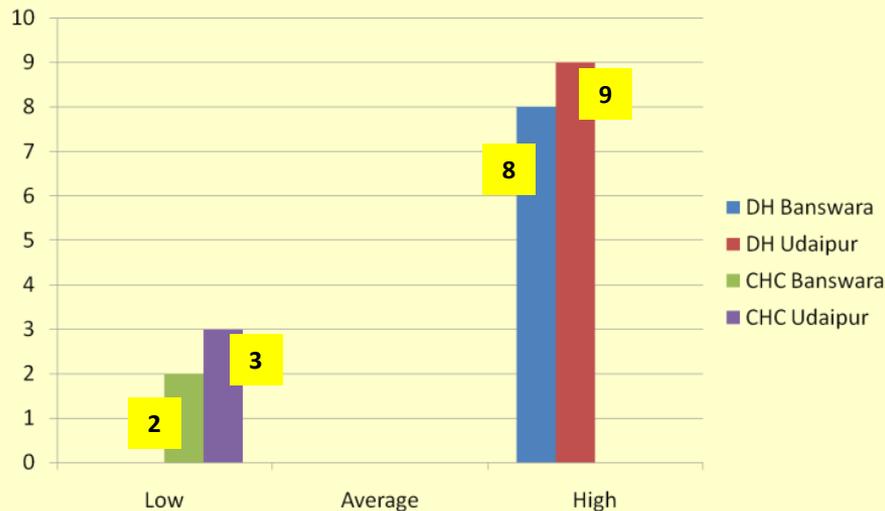
# Operational Plan For Internal Or External Disasters

## Procedures For Response During Evening, Weekend And Holiday Shifts



Both DH Banswara and DH Udaipur and CHCs should ensure that Procedures for response during evening, weekend, and holiday shifts

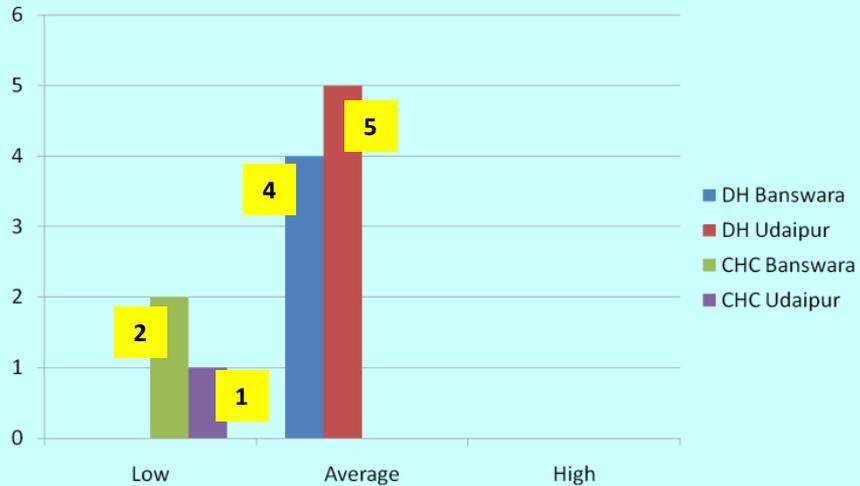
## Procedures For The Evacuation Of The Facility



Both CHC Banswara and CHC Udaipur should ensure that the Procedures for the evacuation of the facility

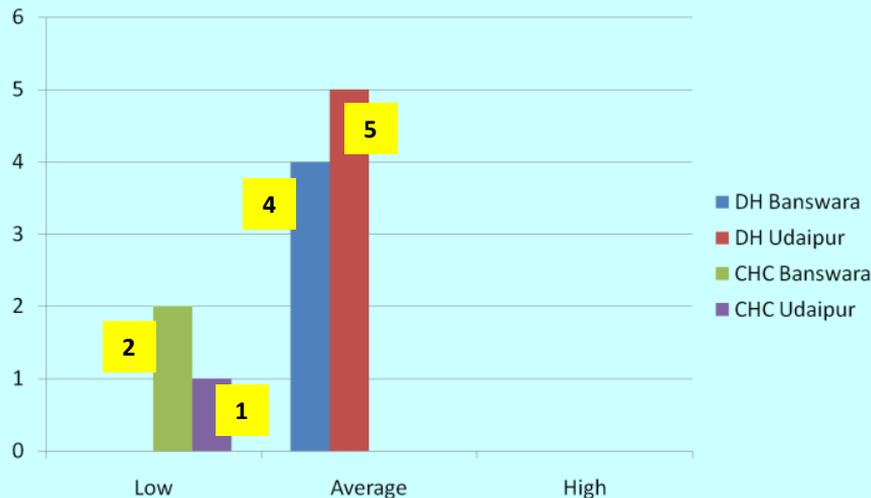
# Contingency Plans For Medical Treatment In Disasters

## Social Conflict And Terrorism



Both DH Banswara and DH Udaipur and CHCs should ensure that challenges of Social conflict and terrorism are addressed positively

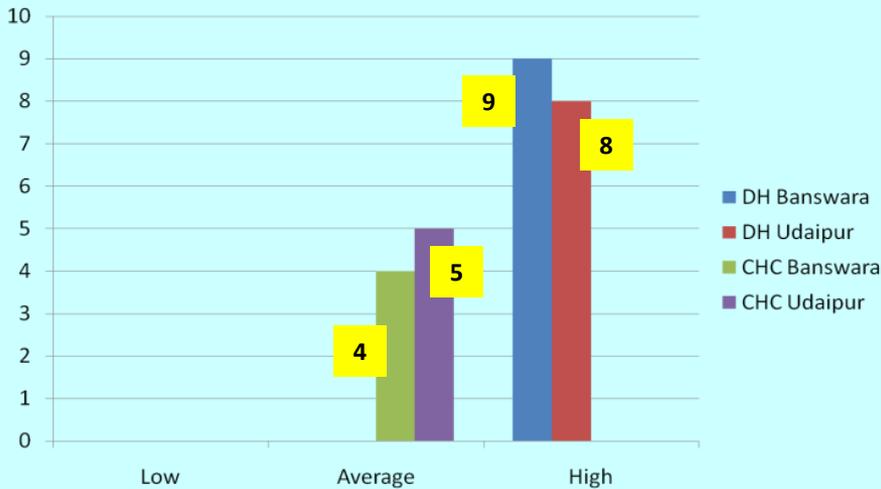
## Floods And Hurricanes



Both DH Banswara and DH Udaipur including CHCs should ensure Plan exists, personnel have been trained, and resources are in place to carry out the plan for Floods and hurricanes

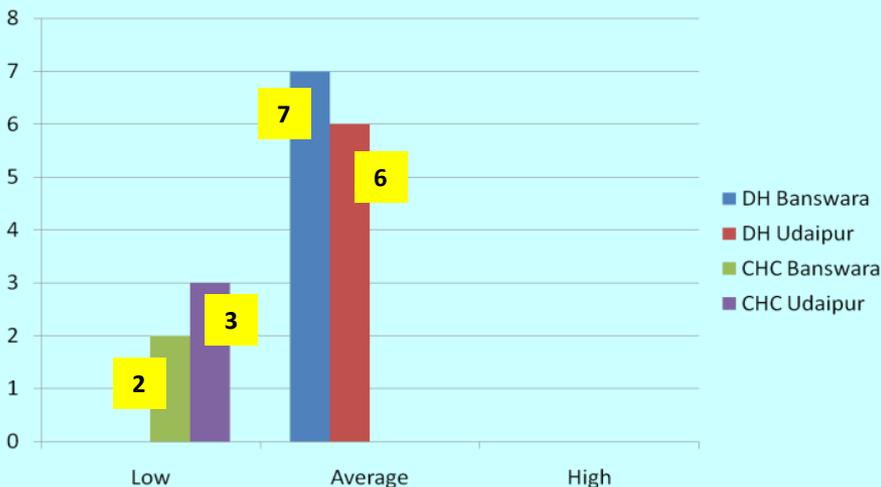
# Contingency Plans For Medical Treatment In Disasters

## Fires And Explosions



Both CHC Banswara and CHC Udaipur should ensure Plan exists, personnel have been trained, and resources are in place to carry out the fires and explosion plan

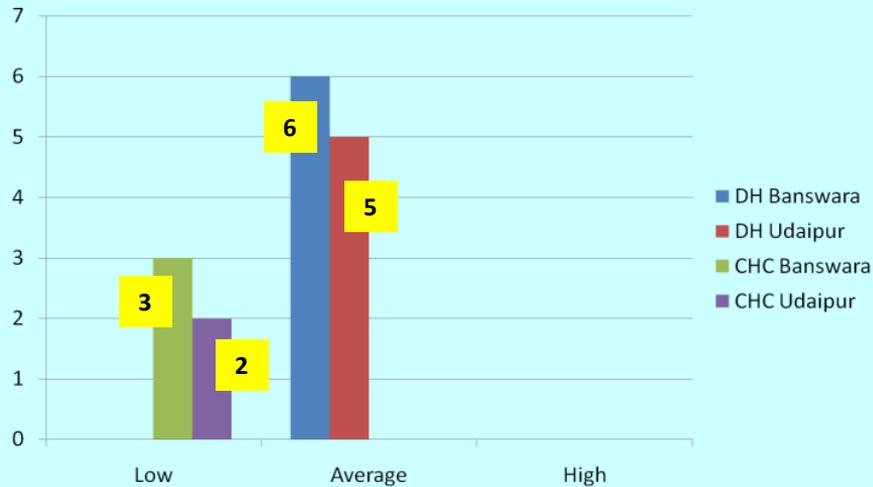
## Pathogens With Epidemic Potential



Both DH Banswara and DH Udaipur and CHCs should ensure that the Plan exists, personnel have been trained, and resources are in place to carry out the plan with regards to pathogens with epidemic potential

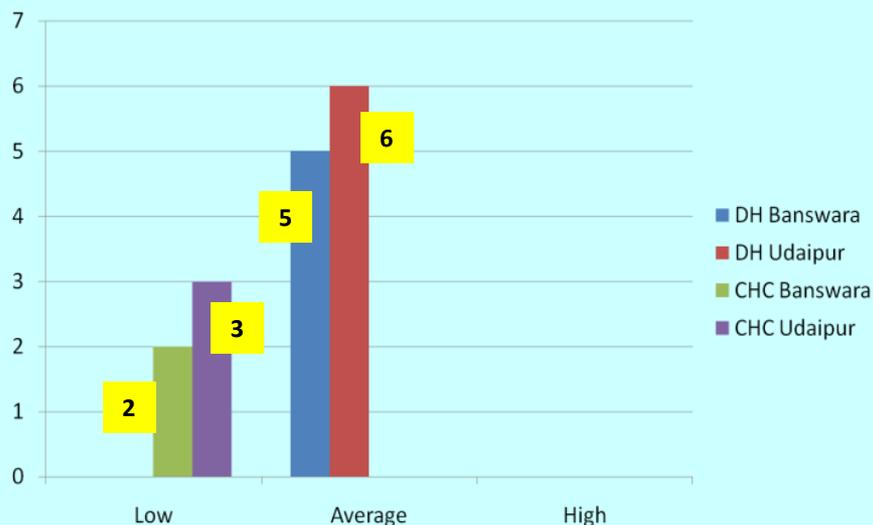
# Contingency Plans For Medical Treatment In Disasters

## Psycho-social Treatment For Patients, Families And Health Workers



Both DH Banswara and DH Udaipur including CHCs should ensure that Psycho-social treatment for patients, families, and health workers

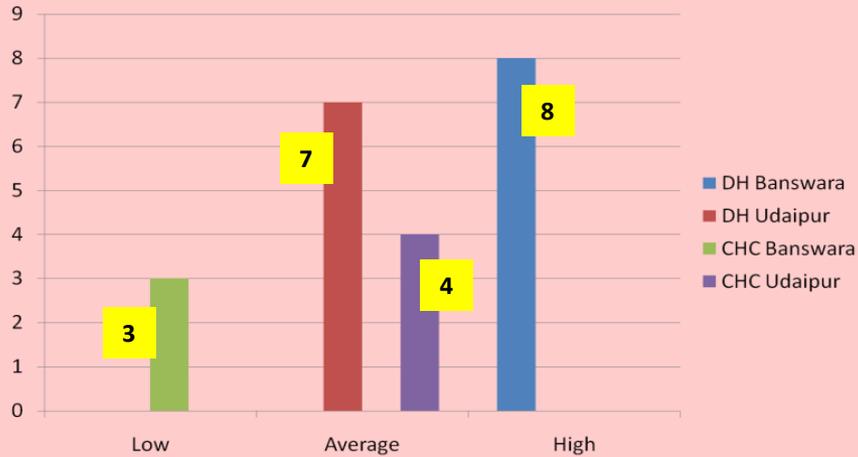
## Control Of Hospital-acquired Infections



Both DH Banswara and DH Udaipur including CHCs should ensure that proper Control of hospital-acquired infections

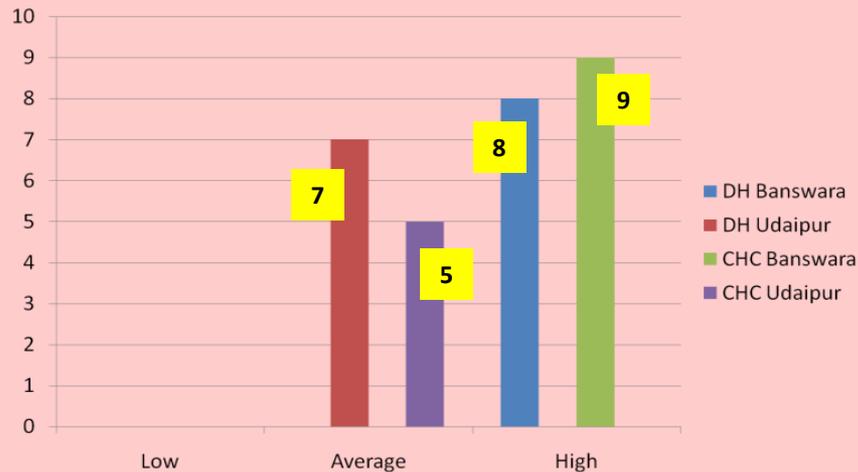
# Plans For The Operation, Preventive Maintenance, And Restoration Of Critical Services

## Electric Power Supply And Back-up Generators



DH Udaipur including CHCs should ensure proper Electric power supply and back-up generators

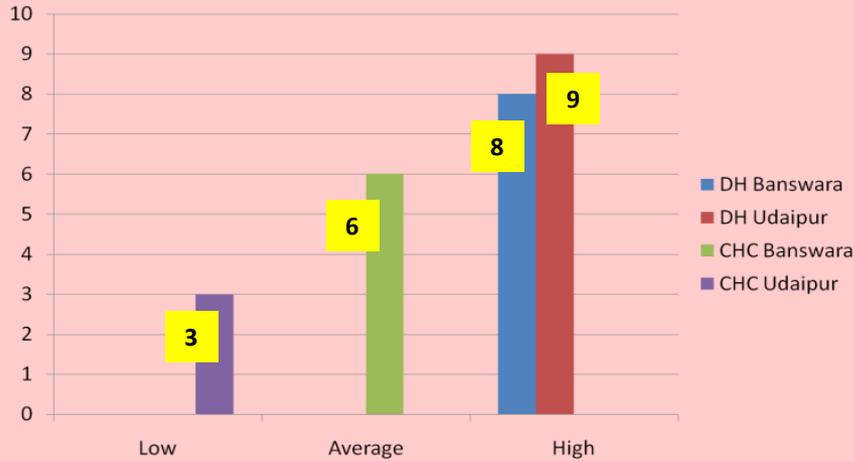
## Drinking Water Supply



Both CHC Banswara and CHC Udaipur should ensure proper and regular drinking water supply

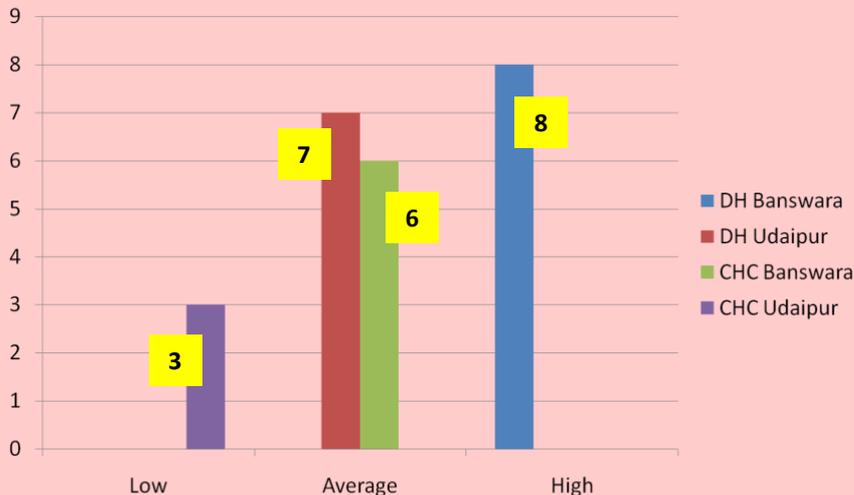
# Plans For The Operation, Preventive Maintenance, And Restoration Of Critical Services

## Fuel Reserves



Both CHC Banswara and CHC Udaipur should ensure regular and adequate Fuel reserves

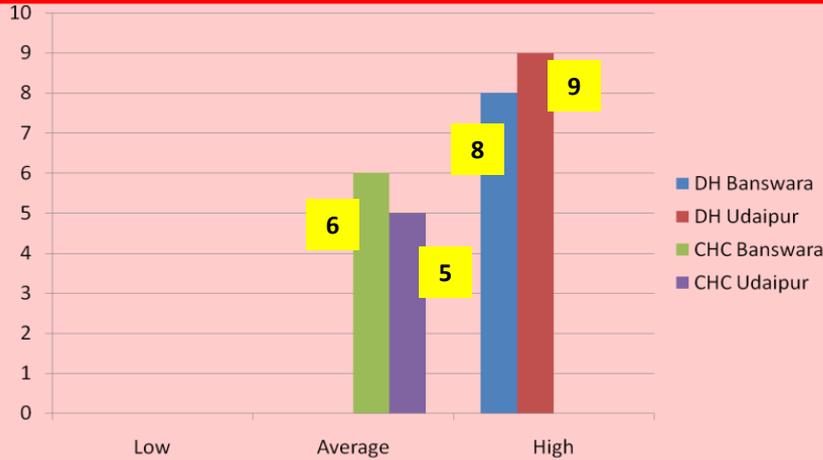
## Medical Gases



DH Udaipur including CHCs should ensure that Procedures exist, personnel have been trained, and resources are in place to implement them with regards to medical gases

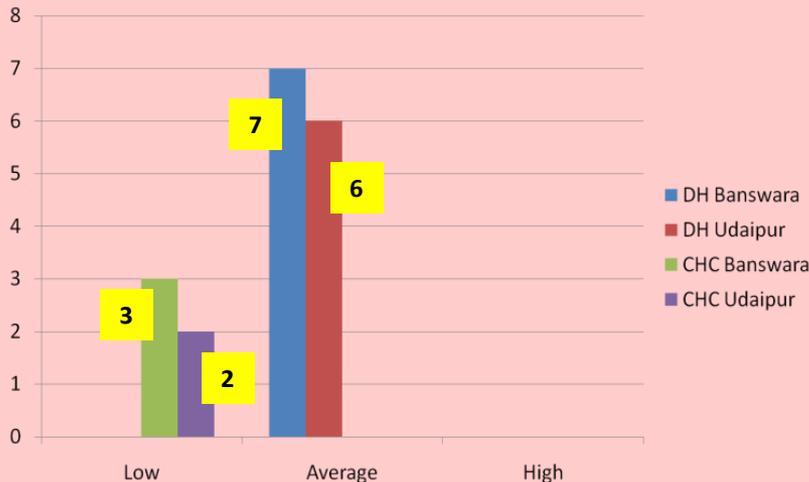
# Plans For The Operation, Preventive Maintenance, And Restoration Of Critical Services

## Standard And Back-up Communications Systems



Both CHC Banswara and CHC Udaipur should ensure Procedures exist, personnel have been trained, and resources are in place to implement them for Standard and back-up communications systems

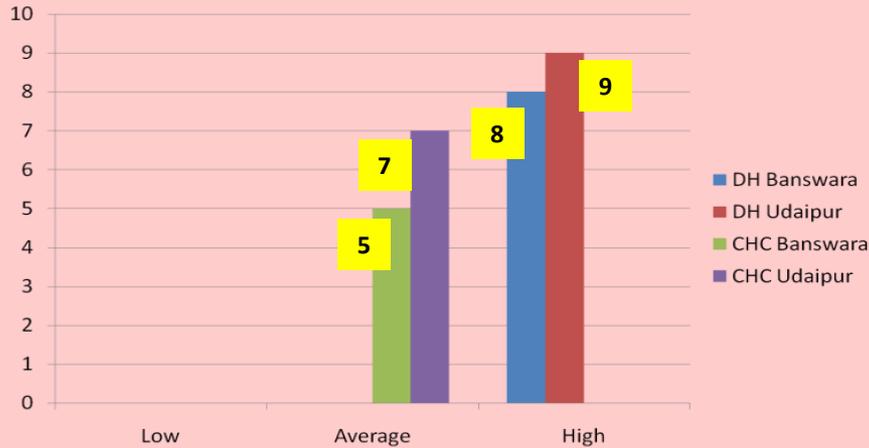
## Wastewater Systems



Both DH Banswara and DH Udaipur including CHCs should ensure proper waste water systems

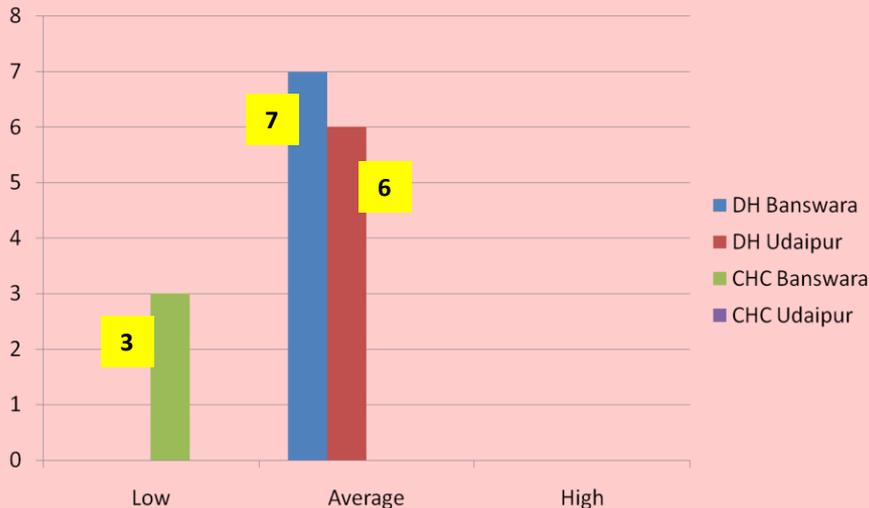
# Plans For The Operation, Preventive Maintenance, And Restoration Of Critical Services

## Solid Waste Management



Both CHC Banswara and CHC Udaipur should ensure proper solid waste management

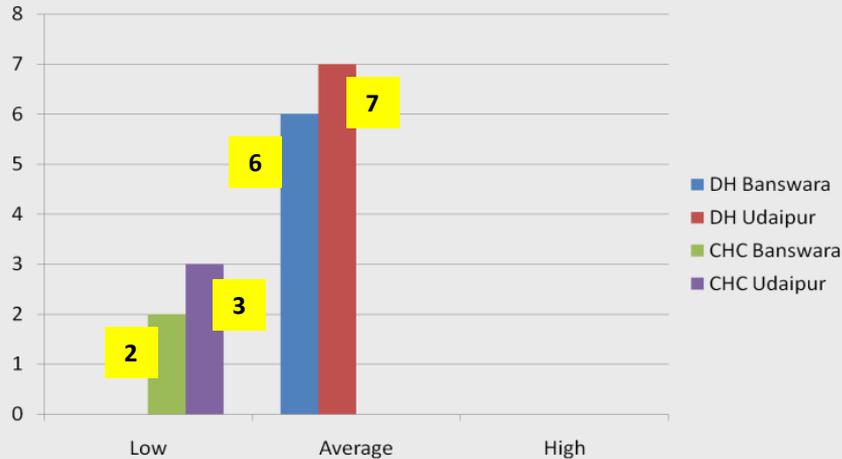
## Maintenance Of The Fire Protection System



Both DH Banswara and DH Udaipur including CHCs should ensure proper maintenance of fire protection system

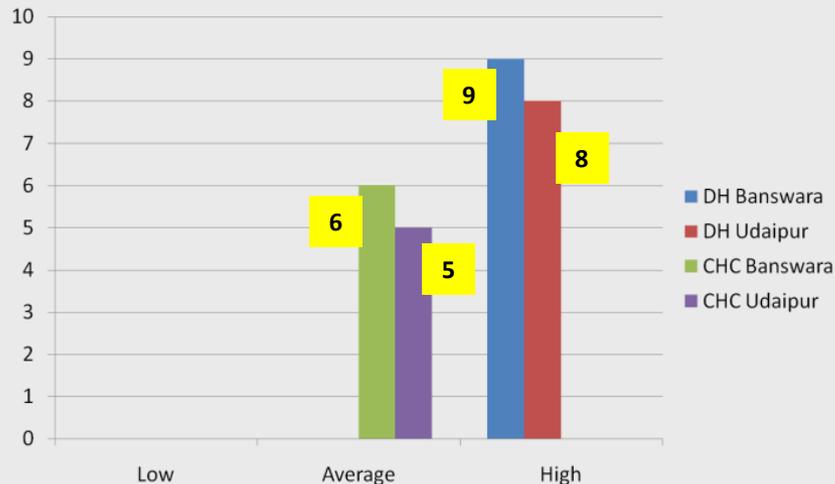
# Availability Of Medicines, Supplies, Instruments, And Other Equipment For Use In Emergency

## Medicines



Both DH Banswara and DH Udaipur including CHCs should ensure that the medical Supply is guaranteed for at least 72 hours

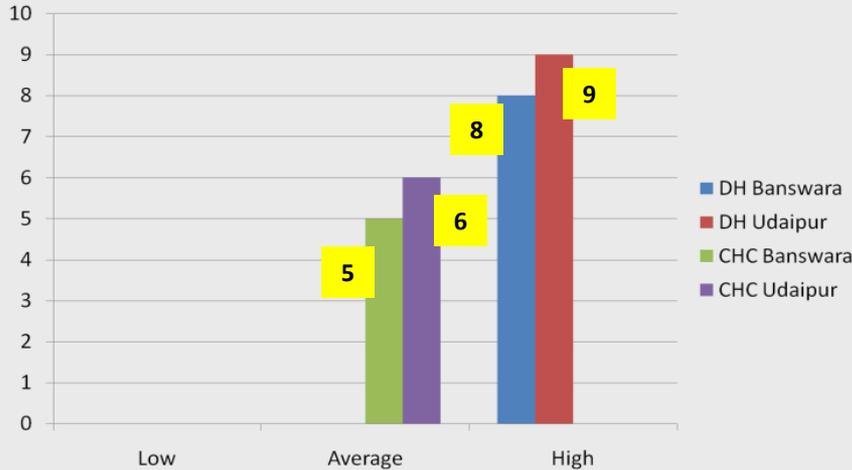
## Items For Treatment And Other Supplies



Both CHC Banswara and CHC Udaipur should ensure that the Supply of items for treatment and other supplies guaranteed for at least 72 hours

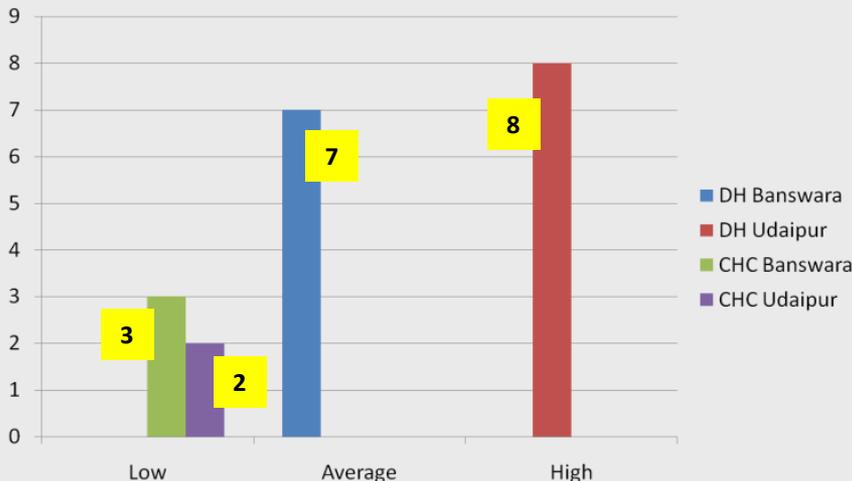
# Availability Of Medicines, Supplies, Instruments, And Other Equipment For Use In Emergency

## Instruments



Both CHC Banswara and CHC Udaipur should ensure that the Supply of instruments are guaranteed for at least 72 hours

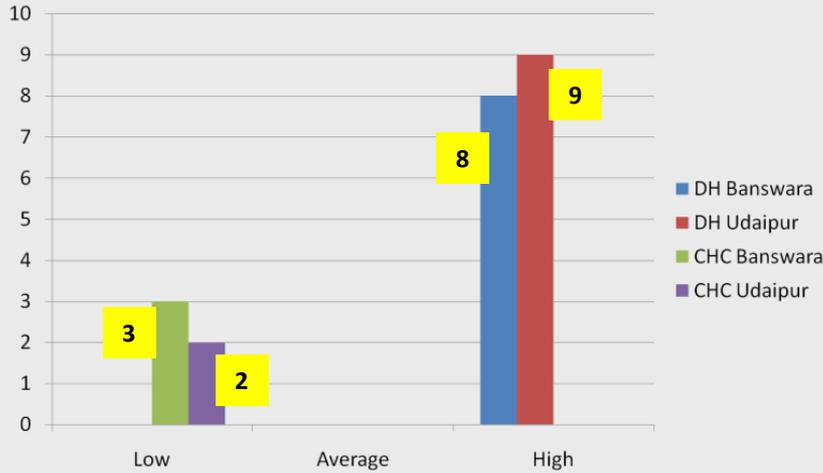
## Electro-Medical Equipment



Both DH Banswara and CHC Udaipur and CHC Banswara should ensure that Supply of electro medical equipment is guaranteed for at least 72 hours

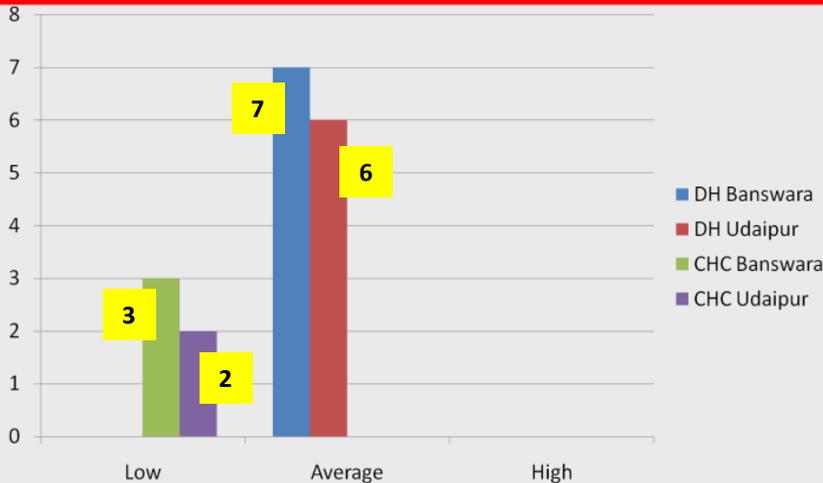
# Availability Of Medicines, Supplies, Instruments, And Other Equipment For Use In Emergency

## Crash Cart For Cardiopulmonary Arrest



Both CHC Banswara and CHC Udaipur should ensure that the supply of crash cart for cardio pulmonary arrest is guaranteed for at least 72 hours

## Triage Tags And Other Supplies For Managing Mass Casualties



Both DH Banswara and DH Udaipur including CHCs should ensure regular the Triage tags and other supplies for managing mass casualties

# Summary of Scores Obtained by Government Health Care Facilities

	<b>Summary</b> (Score out of 60 elements/standards with equal weightage)			
	<b>DH Udaipur</b>	<b>CHC Udaipur</b>	<b>DH Banswara</b>	<b>CHC Banswara</b>
<b>Low (Inadequate)</b>	<b>08 (14%)</b>	<b>32 (53%)</b>	<b>13 (21%)</b>	<b>37 (60%)</b>
<b>Average (At Risk)</b>	<b>20 (33%)</b>	<b>25 (42%)</b>	<b>26 (44%)</b>	<b>22 (38%)</b>
<b>High (Functional)</b>	<b>32(53%)</b>	<b>03 (05%)</b>	<b>21 (35%)</b>	<b>01 (2%)</b>
<b>Score (out of 10)</b>	<b>09</b>	<b>02</b>	<b>08</b>	<b>03</b>
<b>Remarks</b>	<b>Functional (A)</b>	<b>Inadequate (C)</b>	<b>Average (B)</b>	<b>Inadequate (C)</b>

# Hospital Preparedness Program



## Key Findings & Recommendations



# Key Findings and Recommendations

## At State Govt Level

- There needs to be concerted efforts made by the Rajasthan State government health authorities to make the level of disaster preparedness and safety plans more effective and responsive of the four Health Care Facilities(HCF)
- Operational and functional resilience of government hospitals in Rajasthan to be addressed properly
- Make hospitals safe and resilient to future risks, including climate change in the districts of Banswara and Udaipur. Integrate disaster risk reduction (DRR) into the health sector and implement mitigation measures to reinforce existing health facilities by the health authorities in Rajasthan Government

# Key Findings and Recommendations

## At State Govt Level

- Establishment of the Hospital Emergency Incident Command System (HEICS), a management structure concept propounded by USA to identify responsibilities, reporting connections, and a common designation to help combine government hospitals in all the districts of Rajasthan with other emergency responders (suitably modified to suit Indian Health Care requirements)
- Rajasthan State government requires to formulate State Disaster Management Plans (SDMPs) which detail how to prepare, mitigate, respond and recover from disasters. Ensure its implementation by government Health Care Facilities
- The Health Care Facilities need to follow the guidelines as per the National Action Framework for Hospital Safety issued by Gol.

# Key Findings and Recommendations

## At District HQ Level

- District HQ authorities need to enable government Health Care Facilities in Districts of Banswara and Udaipur to continue to function and provide appropriate and sustained levels of healthcare during and following emergencies and disasters
- Emergency Response Plans need to be developed and maintained for each of the emergencies identified as priorities in the HRVA and monitored periodically at District HQ level (Civil Surgeon and Director of health services)
- Protect the physical integrity of hospital buildings, equipment and critical hospital systems by periodic inspections and visits by concerned authorities

# Key Findings and Recommendations

## At District HQ Level

- Mitigation, Preparedness and Recovery Plans: Emergency Response Plans should include the activity designed to mitigate the impact of the emergency, such as medical specialized equipment, and to prepare for the emergency with activities including staff training, adequate supplies, and equipment for responding the potential emergency, and plans to handle the space and facilities during emergency situations
- Disaster management plans should be evaluated at the two districts of Banswara and Udaipur on an ongoing basis at least annually. The appraisal should identify components of the program that need to be instituted, revised or deleted. The report should be submitted to State Government for assistance and needful directions on the lapses if any.

# Key Findings and Recommendations

## At Health Care Facility(HCF) Level

- Organization of disaster committee and emergency operation centre should be made more effective and responsive by DH Banswara and CHCs of Banswara and Udaipur
- Operational plans for internal and external disasters should be reviewed periodically and made up to date with regular practice and rehearsals at appropriate levels by all the four Health Care Facilities (HCF)
- Contingency plans for medical treatment during disasters should be ready at all times by the DHs and CHCs respectively
- Plans for operation, maintenance and restoration of critical services is essential to ensure high degree of functional capacity
- Adequate availability of medicines, supplies, instruments and other equipment required during emergencies be catered for by DH Banswara and CHCs of Banswara and Udaipur. Udaipur

# Key Findings and Recommendations

## At Health Care Facility(HCF) Level

- A well documented Hospital Disaster Management Plan should be formulated by all the four Health Care Facilities (HCF)
- Ensure adequate or complete plans of internal and external communication is maintained by the DHs and CHCs respectively
- Lifelines such as electricity, water and sanitation and waste treatment and disposal of medical wastes are important to ensure continuity of operations during an emergency situation by DH Banswara and CHCs of Banswara and Udaipur
- Management plan should describe the processes it implements to effectively manage emergencies affecting the facility, patients, staff, and to respond to emergencies in the community that cause an influx of patients

# Key Findings and Recommendations

## At Health Care Facility(HCF) Level

- The Emergency Response Plans of the four Health Care Facilities (HCF) should include the specifics of the response, including job assignments, staffing strategies and the management of patients, both victims of the emergency and existing patients
- The disaster preparedness plan by these facilities should address the management of patient care activities
- A facility evacuation plan should be in place and needs to be implemented in phases in both the districts of Banswara and Udaipur

## To Conclude...

- Many factors based on functional capacity which put hospitals and health care facilities at risk
- Functional collapse, not structural damage, is the usual reason for hospitals being put out of service during emergencies
- Functional collapse occurs when the elements that allow a hospital (Health Care Facility) to operate on a day-to-day basis are unable to perform because the disaster has overloaded the system
- Preparation and Implementation of Hospital Disaster Management Plan
- Creating safe hospitals (Health Care Facility) is as much about having vision and commitment as it is about actual resources
- ***The most costly hospital (Health Care Facility) is the one that fails during disasters !***

# References

UNISDR, Hyogo Framework for Action 2005-2015, in: United Nations Int. Strateg. Disaster Reduc, 2005. doi:10.1017/CBO9781107415324.004

A. Aitsi-Selmi, S. Egawa, H. Sasaki, C. Wannous, V. Murray, The Sendai framework for disaster risk reduction: Renewing the global commitment to people's resilience, health, and well-being, *Int. J. Disaster Risk Sci.* 6 (2015) 164–176.

A.S. Elnashai, L. Di Sarno, *Fundamentals of earthquake engineering*, Wiley New York, 2010.

R.H. Ofrin, I. Nelwan, Disaster risk reduction through strengthened primary health care, in: *Reg. Heal. Forum, World Health Organization Regional Office for South-East Asia*, 2012: p. 29.

R.H. Ofrin, I. Nelwan, Disaster risk reduction through strengthened primary health care, in: *Reg. Heal. Forum, World Health Organization Regional Office for South-East Asia*, 2014: p. 29.

A.H. Kaji, V. Langford, R.J. Lewis, Assessing Hospital Disaster Preparedness: A Comparison of an On-Site Survey, Directly Observed Drill Performance, and Video Analysis of Teamwork, *Ann. Emerg. Med.* 52 (2008). doi:10.1016/j.annemergmed.2007.10.026

M. Top, Ö. Gider, Y. Tas, An Investigation of Hospital Disaster Preparedness in Turkey, *J. Homel. Secur. Emerg. Manag.* 7 (2010). doi:10.2202/1547-7355.1781.

W.H. Organization, *Hospital safety index: Guide for evaluators*, World Health Organization, 2015.

# References

A. Ardalan, M.K. Keleh, A. Saberinia, D. Khorasani-Zavareh, H. Khankeh, J. Miadfar, S. Maleknia, A. Mobini, S. Mehranamin, 2015 Estimation of Hospitals Safety from disasters in I.R.Iran: The results from the assessment of 421 hospitals, PLoS One. 11 (2016) 1–10. doi:10.1371/journal.pone.0161542

G.A. Mensah, A.H. Mokdad, S.F. Posner, E. Reed, E.J. Simoes, M.M. Engelgau, V.P. in N.D.W. Group, When chronic conditions become acute: prevention and control of chronic diseases and adverse health outcomes during natural disasters, Prev. Chronic Dis. 2 (2005).

V. Radovic, K. Vitale, P.B. Tchounwou, Health facilities safety in natural disasters: Experiences and challenges from south east Europe, Int. J. Environ. Res. Public Health. 9 (2012) 1677–1686. doi:10.3390/ijerph9051677

A. Djalali, M. Castren, H. Khankeh, D. Gryth, M. Radestad, G. Ohlen, L. Kurland, Hospital disaster preparedness as measured by functional capacity: a comparison between Iran and Sweden., Prehosp. Disaster Med. 28 (2015) 454–461. doi:10.1017/S1049023X13008807

K. Tanaka, The Kobe earthquake: the system response. A disaster report from Japan, Eur. J. Emerg. Med. 3 (1996) 263–269. <http://www.biomednet.com/db/medline/97209198>

L.-C.G. Alexakis, T.A. Codreanu, S.J. Stratton, Water and Power Reserve Capacity of Health Facilities in the Greek Islands, Prehosp. Disaster Med. 29 (2014) 146–150. doi:10.1017/S1049023X14000077

D.C. Cone, B. a Cummings, Hospital disaster staffing: if you call, will they come?, Am. J. Disaster Med. 1 (2006) 28–36. <http://www.ncbi.nlm.nih.gov/pubmed/18274041>

