Public Health Emergency and Disaster Management Professional Development Programme (PHEDM-PDP)- Tier II

Foundational Course

Participant's Guide

National Institute of Disaster Management (NIDM)
Ministry of Home Affairs, Government of India

in collaboration with

National Centre for Disease Control (NCDC)
Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India

and

U.S. Centers for Disease Control and Prevention (CDC)
Division of Global Health Protection, Country Office - India



Resilient India - Disaster Free India

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Training Module on Public Health Emergency and Disaster Management- Professional Development Programme (PHEDM-PDP) - Tier II

ISBN No.: 978-81-957965-8-8

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Edition: 2022

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Published by
National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Government of India, Delhi-110042

Support and Development of Module:

- U.S. Centers for Disease Control and Prevention (CDC), Country Office, India
- U.S. Centers for Disease Control and Prevention (CDC), Atlanta, Georgia
- Integrated Disease Surveillance Programme (IDSP), National Centre for Disease Control (NCDC), Ministry of Health and Family Welfare (MoHFW), Government of India, Delhi

Citation
Parkash S., Sharma R., Menchion W.C., Chauhan H., Thapa R., Kaur H., Kathait A., Dogra A., (2022). Training Module on Public Health Emergency and Disaster Management- Professional Development Programme (PHEDM-PDP)-Tier II. National Institute of Disaster Management, Delhi

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अजय कुमार मिश्रा
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संदेश

यह प्रसन्नता का विषय है कि राष्ट्रीय आपदा प्रबंधन संस्थान (एनआईडीएम) ने राष्ट्रीय रोग नियंत्रण केंद्र (एनसीडीसी) तथा यू.एस. रोग नियंत्रण और रोकथाम केंद्र (सीडीसी), कंट्री ऑफिस इंडिया के सहयोग से "सार्वजनिक स्वास्थ्य आपातकालीन और आपदा प्रबंधन–व्यावसायिक विकास कार्यक्रम (पीएचईडीएम)–टियर II" पर एक प्रशिक्षण मॉड्यूल विकसित किया है।

सार्वजनिक स्वास्थ्य आपात स्थिति और आपदाएं सामाजिक आर्थिक प्रणालियों और पूरे समाज पर प्रतिकूल प्रभाव डालती हैं। कोविड–19 महामारी द्वारा आर्थिक और सामाजिक गतिविधि को बनाए रखने और अप्रत्याशित जोखिमों पर प्रतिक्रियाओं को सुविधाजनक बनाने के लिए एक कुशल कार्यबल, मजबूत बुनियादी ढांचे और प्रणालियों के महत्व को प्रकाश में लाया गया है।

मुझे विश्वास है कि यह प्रशिक्षण मॉड्यूल सार्वजनिक स्वास्थ्य आपातकालीन और आपदा प्रबंधन के क्षेत्र में देश की व्यापक और बहुमुखी क्षमताओं को बढ़ाने में प्रभावशाली होगा।

मैं, एनआईडीएम–एनसीडीसी–सीडीसी को इस प्रशिक्षण मॉड्यूल को विकसित करने के लिए बधाई देता हूँ और भविष्य के प्रयासों में सफलता के लिए अपनी शभुकामनाएँ देता हूँ।

(अजय कुमार मिश्रा)

दिनांक: 01.12.2022
नई दिल्ली।

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डॉ. विनोद कुमार पॉल
सदस्य
Dr. Vinod K. Paul
MEMBER

सत्यमेव जयते

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3rd November, 2022

Message



The COVID-19 pandemic has exposed the inadequacy of public health systems worldwide and drawn attention to the fact that governance matters. This was an emergency that required a more coordinated, multisectoral response, inside as well as outside of the Government. The COVID-19 pandemic has shown the critical need for India to acquire a modern public health structure and adopt people-centric, whole of government and whole-of-society approach. The emerging challenges and the problems directly related to globalisation, such as pandemics and the public health consequences of climate change, need to put in place a system that can identify, track and prevent disease, while continually promoting the health of its people.

NITI Aayog has the twin mandate to oversee the adoption and monitoring of the Sustainable Development Goals (2015-2030) in the country and promote competitive and cooperative federalism among States and UTs. The task at hand to proactively realize the goals and targets including good health, human development and sustenance. These SDGs have been very well related to the priority actions and targets under the SFDRR-Sendai Framework for Disaster Risk Reduction (2015-2030) as well as the Paris Agreement during COP-21 for climate change adaptation.

This training module on Public Health Emergency and Disaster Management will play a crucial role in promoting a shared vision of active engagement of diverse stakeholders from public health and disaster management. The module is rich in content and easy to read and assimilate.

My compliments to Professor Dr. Surya Parkash, Dr. Rajeev Sharma, Dr. Himanshu Chauhan and the entire team for bringing out this training module, the essence of which can be embedded in the preparedness and response activities towards public health emergencies and disaster management.

(Vinod Paul)

स्वच्छ भारत
एक कदम स्वच्छता की ओर

प्रो.(डॉ.) अतुल गोयल
Prof. (Dr.) ATUL GOEL
MD (Med.)
स्वास्थ्य सेवा महानिदेशक
DIRECTOR GENERAL OF HEALTH SERVICES

सत्यमेव जयते

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स्वास्थ्य एवं परिवार कल्याण मंत्रालय
स्वास्थ्य सेवा महानिदेशालय
Government of India
Ministry of Health & Family Welfare
Directorate General of Health Services



FOREWORD

The Covid-19 Pandemic has proved to be a defining public health emergency of our times that seriously challenged Public Health Systems of even the developed world. India's efforts to manage the pandemic can be best described as a people-centric, whole of Government, whole of society approach built on past experiences of managing public health emergencies as well as contemporary scientific knowledge.

The Government of India is committed to ensure highest possible level of health care for well-being of all, at all ages, through a preventive and promotive healthcare approach in all developmental policies to provide universal access to good quality health care services, without hardship to any citizen. Directorate General of Health Services (Dte.GHS) technically assists Ministry of Health and Family Welfare (MoHFW) in implementing various schemes, programs and national initiatives to provide universal access to quality health care to citizens of the country.

The Covid-19 Pandemic was not only an unprecedented challenge confronting the world with its socio-economic impact beyond the health sector but also a historic opportunity to build new global partnerships with reformed and effective multilateralism. There is a need to design platforms to bring together practitioners, policymakers, and other stakeholders who work in diverse fields that collectively contribute to reduce health risks and consequences of all types of emergencies and disasters under one roof. This comprehensive training module aims to cement any gaps in this mechanism. .

I congratulate Professor Dr. Surya Parkash, Dr. Rajeev Sharma, and my own dear colleagues Dr. Sudarshan Mandal and Dr. Himanshu Chauhan along with the entire team for formulating this training module. Not all emergencies can be predicted, but one can be prepared for them. I hope this training module will help us to that.

(Atul Goel)

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nidm
Resilient India - Disaster Free India

ताज हसन, भा. पु. से.
कार्यकारी निदेशक

Taj Hassan, IPS
Executive Director

सत्यमेव जयते
आज़ादी का अमृत महोत्सव

राष्ट्रीय आपदा प्रबंधन संस्थान
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FOREWORD

The challenges being faced by humankind owing to public health emergencies and disasters are transnational in nature, and require a coordinated and prompt global response. Disaster and public health systems play an integral role in preparing communities to respond to and recover from such threats and emergencies. The Covid-19 Pandemic has demonstrated the critical need to focus on the resilience of the existing systems of public health emergency and disaster management. Hence, enhancement of capacities of the country in preparation for and response to disasters and infectious diseases of pandemic potential by leveraging a multidisciplinary approach is the need of the hour.

As per the Disaster Management Act 2005, National Institute of Disaster Management (NIDM) has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation and policy advocacy in the field of disaster management. According to its mandate, NIDM has made substantial contributions in formulating various guidelines, policy and plans, training modules and documentations for capacity enhancement in the field of disaster risk reduction and resilience.

This training module on "Foundational Course on Public Health Emergency and Disaster Management" will go a long way in understanding public health emergencies and disaster management concepts, approaches and initiatives taken at the national and global levels. This training module will also facilitate understanding of the role of multiple stakeholders - local governments, non-governmental organizations, academic and research institutions in public health emergencies and disaster situations.

I complement Prof. Surya Parkash, Head CBRN, Industrial and Cyber DRR&R Division, NIDM; Dr. Himanshu Chauhan, Joint Director NCDC, MoHFW and Dr. Rajeev Sharma, Lead & PHS-EM, U.S. CDC, Country Office, India and other team members for their meticulous work and immense personal contribution in bringing out this publication. I also express my gratitude for the sincere and professional inputs from the external reviewers in assisting the NIDM in upkeeping the quality of this training module.

tajhassan

(Taj Hassan)

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FOREWORD

Public Health Emergency and Disaster Management (PHEDM) is a diverse field that brings together a wide range of functions in disaster, health, and other sectors with the goal of improving health outcomes for people around the world who a suffer as a result of emergencies and disasters.

The global COVID-19 pandemic demonstrated the need for multisectoral, multi-layered, multi-agency coordination, information sharing and partnership. As there are multiple stakeholders involved in public health emergency management, it is important that implementing agencies provide stakeholders with timely, relevant, understandable, accessible, and culturally appropriate information. Such transparency increases partners' ability to work together effectively. This Foundational Course on Public Health Emergency and Disaster Management aims to strengthen capacity for complex information and resource management with inputs from multiple subject matter areas, thereby facilitating decision making and accelerating disaster and public health emergency response management in India.

CDC remains committed to working with India on several of the most important public health challenges of our time. From smallpox to SARS-CoV-2, CDC collaborations over 5 decades with India have benefited both countries, the entire region, and indeed the world. CDC partners with GOI to strengthen core public health capabilities and systems to prevent, detect, and respond to emerging infectious diseases, with a focus on real-time disease surveillance, laboratory systems and diagnostics, workforce development, and emergency management.

I would like to congratulate Shri Taj Hassan, IPS Executive Director, NIDM, Dr. Atul Goel, DGHS and Dr Sujeet K Singh, former Director NCDC, MoHFW for their direction and guidance. I will always be grateful to Professor Surya Parkash, Head GMRD, EOC, Dr. Himanshu Chauhan, Joint Director and In-charge, IDSP and CDC's Dr. Rajeev Sharma and Mr. Chuck Menchion for developing this training module. I am sure this will go a long way in meeting the needs of multiple stakeholders who are supporting public health emergencies and disaster management.

Dr. Meghna Desai,
Country Director,
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PREFACE



People across the world are faced with a wide and diverse range of risks associated with health emergencies and disasters. These comprise infectious disease outbreaks, natural hazards, conflicts, unsafe food and water, chemical and radiation incidents, building collapses, transport incidents, lack of water and power supply, air pollution, antimicrobial resistance, the effects of climate change, and other sources of risk. India is also the seventh-most vulnerable country with respect to climate extremes. All systems, sectors, and stakeholders in a nation, including the government, the corporate sector, and the national and international community, must act immediately in response to such emergencies and disasters.

National Institute of Disaster Management (NIDM) under the aegis of the Ministry of Home Affairs, Government of India is mandated to endeavour for disaster resilient India through its training, research, documentation and publications. This training module on PHEDM covers a foundation for the Public Health Emergency and Disaster Management (PHEDM) principles, concepts, processes, tools, practices and guidance to develop capacity at State and District levels. This training module is designed for practitioners, policymakers, and other stakeholders who work in the many fields that contribute to reducing the health risks and consequences of all types of emergencies and disasters.

We are very thankful to everybody within that community who supported the idea of creating a training module on PHEDM. This module would not have been possible without the great support of the authors, and we would like to express our sincere thanks to all of them. I would also like to convey special thanks to Prof (Dr) Muzaffar Ahmad, Former Member NDMA, Government of India, Former Director General Health and Dr A C Dhariwal, Former Director NCDC, MoHFW for reviewing the document and whose comments/suggestions helped improve and clarify this module. It is our hope that this module will be a valuable resource for PHE and DRR&R readers and will stimulate further research into the vibrant area of public health emergency & disaster management.



(Surya Parkash)
Prof. & Head, GMRD, NIDM

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

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PREFACE



The effects of recent global infectious disease outbreaks and other disasters on human health have shown how crucial it is to improve public health systems to better safeguard populations from naturally occurring and man-made threats. The practice of public health emergency and disaster management, which is still in its infancy, depends on the unique knowledge, skills, and organizing principles required for the efficient handling of complicated health events.

For over 20 years, the U.S. Centers for Disease Control and Prevention (CDC) has experienced a highly successful technical collaboration with the Government of India (GoI) to address India's public health priorities. As new health threats emerge (e.g., the novel coronavirus COVID-19) CDC and national partners are well-placed to leverage past successful initiatives and rapidly respond to new public health challenges. To strengthen IHR and Global Health Security capacity, CDC provides Public Health Emergency Management Fellowship to the IHR member States and GHSA partner countries. Since PHEM fellowship establishment 2013, a total of 5 PHEM fellows have been trained so far from India.

Taking this collaboration ahead, this training module on “Public Health Emergency and Disaster Management” jointly developed by NIDM, NCDC and CDC aims to provide in-depth exposure to public health emergency management frameworks, functions, staff, and program elements. It also focuses on discussing the public health emergency and disaster management principles and gaining a working knowledge of the functioning of an emergency operations center.

I, on behalf of the U.S CDC, Atlanta, thanks Prof. (Dr.) Atul Goel, Shri Taj Hassan, Dr. Meghna Desai and Dr. Sujeet K. Singh for their encouragement and support. The preparation of this training manual has been expedited with the help of my co-authors Professor Surya Parkash, Dr. Rajeev Sharma,Dr. Himanshu Chauhan and the entire team.

W. Chuck Menchion

W. Chuck Menchion
Lead Emergency Management Specialist
CDC Global Emergency Capacity Development Team

सत्यमेव जयते

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Preface



Emergencies spurred on by hazards of all types are becoming more prevalent over the world and causing more and more challenges for disaster management, healthcare systems and human health. Emergency situations frequently cause delays and disruptions to national development plans. Emergencies and disasters also have an impact on people's lives and livelihoods since they have an indirect effect on socioeconomic elements that support resilience as well as a direct influence on health.

NCDC is envisaged as a Centre-par-excellence to give further impetus to the advancement of knowledge in the prevention and control of communicable/ infectious diseases with a specific focus on Countrywide surveillance of epidemic-prone communicable diseases; epidemic/ outbreak investigations and their containment; referral diagnostic support services; training & manpower development; technical advisory; and applied & operational research. The Institute takes a leading role in undertaking investigations of disease outbreaks all over the country employing epidemiological and diagnostic tools. The institute investigates and recommends control measures for the outbreak of various communicable diseases in the States/UTs all over the country as well as to some neighbouring countries in the Southeast Asia Region. The institute also undertakes monitoring of outbreaks throughout the country, especially during its early rising phase by collecting information from the states and districts through Integrated Disease Surveillance Programme (IDSP). The institute conducts emergency preparedness training for officials in the state.

The first responder teams to an emergency or disaster are composed of disaster and medical professionals. An effective response requires knowledge of and training in emergency and disaster preparation. This training module on Public health emergency and disaster management is a substantial effort to enhance the capacity by emphasizes the critical importance of prevention, preparedness and readiness, together with response and recovery, to save lives and protect health.

This module also outlines the need for the four Cs: Communication, Coordination, Cooperation, and Collaboration as public health emergency and disaster management is never the work of one sector or agency alone. This publication is the product of extensive conversations and contributions from NIDM, IH Division, CDC as well as NCDC colleagues. I express my gratitude to everyone involved in this important endeavor.

(Dr.Himanshu Chauhan)
Joint Director & OIC (IDSP)

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Antibiotic Resistance Containment Stewardship: Our Role, Our Responsibility
Judicious Use of Antibiotic: Key to Contain Antibiotic Resistance

PREFACE



We have seen over time that global health risks have increased through the emergence of new organisms, drug resistance, intentional events, climate change, and increased travel and trade. Certainly, it has been known for a long time that what affects one country can affect other parts of the world. As demonstrated by the present COVID-19 pandemic's rapid global spread, “no one is safe unless everyone is safe”, which shows that we live in a global village.

This pandemic has taught us numerous lesson, given us opportunities, and encountered unique challenges. One of the most significant challenges evidenced by the public health emergency and disaster management response is the dearth of multi-sectoral, multi-layered, multi-agency coordination, information sharing and partnership. As multiple stakeholders are involved in Public Health Emergency Management-Disaster Management (PHEM-DM), the response agencies should provide the stakeholders with timely, relevant, understandable, transparent and actionable information. Furthermore, other significant challenges were meeting the relentless surge needs and building the rapid capacity of emergency responders. This pandemic is a reminder to develop and maintain capabilities to ensure an effective public health emergency and disaster response.

In this context, the "Foundational Course on Public Health Emergency and Disaster Management" training module aims to strengthen public health preparedness and response capabilities. It delineates the emergency management concepts, processes, and tools to enable the emergency response workforce with the capacities to effectively manage public health emergencies and disasters at the local, national, and global levels. The module also showcases the crucial role of carrying evidence-based information to the right people at the right time for managing public health emergencies and disasters holistically.

I want to extend my heartfelt gratitude to NIDM, NCDC and CDC for their competent leadership in developing this training module. The module will aid in scaling up the capacities of disaster management and public health emergency management professionals for effective and integrated emergency preparedness and response.



Dr Rajeev Sharma
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Acknowledgement

At the outset, I would like to express sincere thanks to Shri Taj Hassan, IPS, Executive Director, NIDM; Dr. Sujeet Kumar Singh, Former Director, NCDC and Dr Meghna Desai, Director, U.S. CDC for their kind encouragement, guidance, suggestions and support in the completion of this training module.

I also thank our reviewers, Dr Akshay Chandra Dhariwal, Former Director, NCDC & NVBDCP, MoHFW, GoI and Prof (Dr) Muzaffar Ahmad, Former Member NDMA GoI for their extensive comments and suggestions, which helped in giving the final shape to the training module.

I would like to place on record the significant contributions made by different experts Dr Sanjay Gupta, NIHFW; Prof Manish Chaturvedi, NIHFW; Dr Sanket Kulkarni, NCDC; Dr Pranay Verma, NCDC; Dr Meera Dhuria, NCDC; Dr Sudarsan Mandal, MoHFW; Dr Priyanka Singh, FHI360 and others in providing suggestions and information apropos of the Training Module on Public Health Emergency and Disaster Management- Professional Development Programme (PHEDM-PDP).

It gives me immense pleasure in acknowledging the cooperation of my colleagues Mr Hari Hara Kumar Devada, Mr Ajit Batham, Mr Gunda Gautham Krishna Teja, Shri S.K Tiwari and CDC team, Dr Rajat Garg, Dr Harjeet Kaur, Dr Raju Thapa, Mr Anil Kathait, Mr Ajay Dogra, Mr Sanjeev Karn, and supporting staff at NIDM, without which it would not have been possible in the preparation of this training module.

Sincere thanks are due to the co-authors of this document, who made every effort in the preparation and finalization of this training module.

Last but not the least, I would like to thank my wife Ms Reeta and daughter Rasika, without their consistent moral and logistic support, I would not have been able to give due attention and time to this work.

Finally, I am grateful to the almighty without whose grace and kindness, I would not have been capable to carry out this task successfully.



(Surya Parkash)
Prof. & Head, GMRD, NIDM

Acknowledgement

I want to acknowledge the extraordinary debt I owe Dr Meghna Desai for her encouragement and guidance in formulating the training module. I would also like to express my sincere gratitude to my CDC family Mr Chuck Menchion, Mr Joe Merlino, Dr Runa Gokhale and Dr Rajat Garg for their continuous support.

I owe enormous gratitude to our reviewers, Dr Akshay Chandra Dhariwal, Former Director, NCDC & NVBDCP, MoHFW, GoI and Prof (Dr) Muzaffar Ahmad, Former Member NDMA, MHA, GoI who enlightened us in detail and made constructive comments on this training module. They offered their precious time, wisdom, experience, and expertise to refine the module. I am grateful for their direction in building a better understanding of emergency management principles and concepts and their insights on the capacity development of public health emergency and disaster management professionals.

I am incredibly grateful to my co-authors, experts Dr Shiv Lal, Dr Joseph Williams, Dr Priyanka Singh and team members Mr Sanjeev Karn, Ms Nishtha Bhawalpuria, Dr Amrita Gupta, Dr Akhilesh Tripathi, Mr Manbar Singh, Mr Narender Singh, Mr Shivam S. Shrivastava and Mr Dalveer Singh who have put in their tireless efforts in developing this training module. I am highly privileged to be a part of this team. Their perseverance motivates me and raises a sense of duty, or a "calling to service," in building a healthier and safer world.

I am also grateful to Dr T.S. Selvavinayagam, Director, Directorate of Public Health and Preventive Medicine (DPH&PM), Tamil Nadu and Dr B. Premkumar, Expert Advisor, Project Coordinator, PHEOC-DPH&PM for piloting this training module in Tamil Nadu. In addition, I would also like to put in the record my sincere gratitude to Dr Shailja Bhatt, Director General (Health), Government of Uttarakhand and Dr Pankaj Kumar Singh, State Nodal Officer-IDSP, National Health Mission/Assistant Director, Directorate of Medical Health and Family Welfare, Uttarakhand for initial implementation of this training package in Uttarakhand.

I am thankful to Ms Nanda Sharma and Mr G. R. Sharma, my ever-loving parents, for nurturing and bringing the best out in me.

I also want to thank my life partner Ms Neha Pandey Sharma, for her consistent support, patience and positivity that she brings to my life. This note is incomplete without being thankful to the almighty for sending my reflection, my daughter, Amyra Sharma. Her warmth, love and radiant smile keep me going and make me sturdy during different shades of life.

With best regards and good wishes,



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About the training module

In view of the occurrences of the public health emergencies (outbreak, epidemic, public health emergency of international concern-PHEIC, pandemic) and natural and man-made disasters, a need has been felt in the country to have a robust system for multi-hazard preparedness and response harnessing multi-sectoral approach to attend such exigencies. It is conceived to have a three-tier Professional Development Program (PDP) for the same. First tier for the primary care workers at village, block and tehsil level. Second tier for officers working at State and District Level and third tier for officers working at National and Policy Level. The present participant's guide provide tier-II training package which covers a foundation for the Public Health Emergency and Disaster Management (PHEDM) principles, concepts, processes, tools, practices and guidance to develop capacity at State and District levels.

This PHEDM-PDP tier-II training package is intended to target the following audience at large:

- State and District Surveillance Officers (SSO/DSO), Integrated Disease Surveillance Program (IDSP).
- Officers working at State and District Disease Epidemic Control Room/ Public Health Emergency Operations Centre (PHEOC), Directorate of State Health Services and District Health Organization.
- Officers working at Airport, Port, and Land Crossing Health Units.
- State and District Veterinary, Agriculture, Environment, Forest, and Climate Change Officers.
- State and District Disaster Management Officers, State and District Disaster Management Authority (SDMA/DDMA).
- State and District Panchayati Raj Institutions Officers.
- Fire, Flood, and Law Enforcement including Police, Civil Defence, State and District Disaster Response Force (SDRF/DDRF).
- State and District level Officers from Indian Red Cross Society, UN agencies, and NGOs.
- Academic Institutions.

The PHEDM-PDP tier-II training package consists of six modules covering different aspects inter-alia principles, concepts, processes, tools, practices and guidance to develop capacity at State and District levels in different lessons.

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Abbreviations

AAR	After Action Reviews
A & F	Administration and Finance
AAI	Airport Authority of India
ABQC	Airport and Border Quarantine Center
AMCDRR	Asian Ministerial Conference on Disaster Risk Reduction
APHO	Airport Health Organization
ATI	Administrative Training Institute
BSF	Border Security Force
CBRN	Chemical, Biological, Radiological and Nuclear
CD	Communicable Disease
CDC	Centers for Disease Control and Prevention
CDRI	Coalition for Disaster Resilient Infrastructure
CISF	Central Industrial Security Force
CONOPS	Concept of Operations
DAHF	Department of Animal Husbandry, Dairying and, Fisheries
DDG	Deputy Director General
DDMA	District Disaster Management Authority
DGHS	Director General of Health Services
DM	Disaster Management
DMC	Disaster Management Cell
DRR	Disaster Risk Reduction
DSO	District Surveillance Officer
DSU	District Surveillance Unit
EIS	Epidemic Intelligence Service
EMR	Emergency Medical Relief
EOP	Emergency Operations Plan
EWS	Early Warning Signal
FAO	Food and Agriculture Organization of the United Nations

FETP	Field Epidemiology Training Programme
FIMS	Foundational Incident Management System
GHSA	Global Health Security Agenda
GIS	Geographical Information System
GoI	Government of India
HEOC	Health Emergency Operations Centre
HoD	Head of Department
HPC	High Power Committee (Pant Committee)
IAP	Incident Action Plan
IC	Incident Commander
ICAO	International Civil Aviation Organization
ICMR	Indian Council of Medical Research
IDSP	Integrated Disease Surveillance Programme
IEC	Information, Education, and Communication
IH	International Health
IHIP	Integrated Health Information Platform
IHR	International Health Regulations
IMS	Incident Management System
IMT	Incident Management Team
INSACOG	Indian SARS-CoV-2 Genomics Consortium
IPA	India Port Authority
IRS	Incident Response System
IRT	Incident Response Team
ISR	International Sanitary Regulations
JEE	Joint External Evaluation
LBHU	Land Border Health Unit
LBSNAA	Lal Bahadur Shastri National Academy of Administration
LPAI	Land Port Authority of India
LPHO	Land Port Health Organization
MBO	Management By Objectives
MEF	Monitoring and Evaluation Framework

MERS-CoV	Middle East Respiratory Syndrome Coronavirus
MHA	Ministry of Home Affairs
MISP	Minimum Initial Service Package
MOCA	Ministry of Civil Aviation
MoHFW	Ministry of Health and Family Welfare
MOS	Ministry of Seaports
MSVC	Media Scanning and Verification Cell
NAPHS	National Action Plan for Health Security
NCCP	National Codex Contact Point
NCDC	National Centre for Disease Control
NCDs	Non-Communicable Diseases
NDMA	National Disaster Management Authority
NDMP	National Disaster Management Plan
NFP	National Focal Points
NGO	Non Governmental Organization
NHSRC	National Health System Resource Centre
NIDM	National Institute of Disaster Management
NIHFW	National Institute of Health and Family Welfare
NO	Nodal Officer
OIA	Overseas Indian Affairs
OIE	World Organization of Animal Health
PFA	Prevention of Food Adulteration
PH	Public Health
PHE	Public Health Emergency
PHECP	Public Health Emergency Contingency Plan
PHEDM	Public Health Emergency and Disaster Management
PHEIC	Public Health Emergency of International Concern
PHEM	Public Health Emergency Management
PHEOC	Public Health Emergency Operations Centre
PHERC	Public Health Emergency Response Centre
PHSRC	Public Health Surveillance and Response Centre

PIO	Public Information Officer
PoE	Points of Entry
PPE	Personnel Protective Equipment
RO	Responsible Officers
RRT	Rapid Response Team
RTI	Regional Training Institutes
SARS	Severe Acute Respiratory Syndrome
SDG	Sustainable Development Goals
SDMA	State Disaster Management Authority
SEAR	South East Asia Region
SHOC	Strategic Health Operation Centre
SHSRC	State Health System Resource Center
SIHFW	State Institute of Health and Family Welfare
SimEx	Simulation Exercises
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SOP's	Standard Operating Procedures
SPAR	States Parties Self-Assessment Annual Reporting
SRH	Sexual Reproductive Health
SSU	State Surveillance Unit
THIRA	Threat and Hazard Identification and Risk Assessment
ToT	Training of Trainers
UC	Unified Command
UNDRR	United Nations Office for Disaster Risk Reduction
USA	United States of America
USAID	United States Agency for International Development
USFS	United States Forest Service
UT	Union Territory
VBD	Vector-Borne Diseases
VVIP	Very Very Important Person
WHA	World Health Assembly
WHO	World Health Organization
WOAH	World Organisation for Animal Health

Course Overview

Goal

The Foundational Course on Public Health Emergency and Disaster Management (PHEDM) provides a basic understanding and concepts related to PHEDM and its application to Incident Response System (IRS) and Incident Management System (IMS).

Target Group

This module will be relevant to senior and middle-level functionaries from the government organizations/ departments/agencies, academics, and research institutes besides professionals from public and private sectors working in the field of public health emergencies, disaster management, hazard risk mapping and reduction.

Learning Objectives

- To provide the participants with the basic concepts of PHEDM including COVID-19 pandemic management.
- To acquaint the participants with the PHEDM principles and application of the Incident Management System (IMS) organizational model.
- To introduce the concept and details of the Threat and Hazard Identification and Risk Assessment (THIRA).
- To understand key PHEOC infrastructure and information technology concepts.
- To understand the Incident Response System (IRS) and its application in India.
- To provide the participants with the basic concept of preparedness and response at Points of Entry (PoE) with respect to PHEDM.

Outline of the Training Course

Topic	Time
Welcome and Introduction	30 minutes
Course Overview	15 minutes
Pre-course Assessment	30 minutes
Overview of current status, challenges, opportunities, and best practices in the State	30 minutes
Module I: Overview of Public Health Emergency Preparedness and Response	6 hours
Module II: Overview of Public Health Emergency Management	3 hours
Module III: Public Health Emergency Operations Centre (PHEOC) -Infrastructure and Information Technology	3 hours
Module IV: Overview of Incident Management System (IMS)	4 hours
Module-V: Overview of Incident Response System (IRS)	3 hours

Topic	Time
Module-VI: Public Health Emergency Preparedness and Response at Points of Entry (PoE)	4 hours
Group Work, Case Study and Presentation	5 hours
Course Summary	30 minutes
Post-course Assessment	30 minutes
Participants' feedback	30 minutes
Discussion and Closing Remarks	1 hour
Presentation of Course Completion Certificate	45 minutes
Total Time	≈ 33 hours (3-5 days)

Each lesson would have a progress check at the end of the lesson to make the subject clear and better understandable by putting question and participants need to respond. Correct responses may be seen at Annexure-I.

Overview of current status, challenges, opportunities, and best practices in the State

Background

A thirty-minute presentation by the programme manager/officer of the State to which the participants belong, would help participants connect with the cited subjects covered in the Foundational Course on Public Health Emergency and Disaster Management. The presentation by the officer will focus on the current status, challenges, opportunities and best practices in their jurisdictional area.

Goal

The purpose is to get acquainted with the present scenario, existing challenges, opportunities, and best practices in their jurisdictional area.

Learning Objective

After the presentation by Programme Manager/ Nodal Officer (State/District), participants will be able to connect with Public Health Emergency and Disaster-related local problems, challenges and best practices in existing areas of concern and the system, staff, and stuff (infrastructure) available to manage them.

The presentation needs to be made with the help of the outline given below:

Slide No.	Powerpoint slide contents	Details
1.	Title slide	Title- Overview of current status, challenges, opportunities, and best practices in… (Name of State/District should be given) Name of Presenter
2.	Geo-Socio-Demographic Profile and Stakeholders	Urban, rural, terrain (hill, terai, plain, river, forest), districts, blocks, villages in the map and list of stakeholders
3.	PHEDs during the last five years	Year-wise, type-wise (appropriate diagrammatic representation like bar chart etc.)
4.	Geographical map showing health facilities and at-risk areas for PHEs	Medical Colleges, DH, SDH, CHC, PHC, SC, AW, and at-risk area
5.	Staff, Systems for PHEDM	State/District Administration, Public Health and Medical Team, Disaster and Public Health Acts, Plan, Guidelines and SOPs
6.	Stuff (infrastructure) for PHEDM	Control Room/Command Centre/ EOC/ PHEOC/PHSRC/PHERC, IT and ICT
7.	Challenges, opportunities, and best practices	Coordination mechanism, overriding priority, trai ning or any other relevant challenges, opportunities, and best practices
8.	Way Forward	New initiatives, proposals in pipeline, innovations, technology

Notes

MODULES

Module I: Overview of Public Health Emergency and Disaster Preparedness and Response

The goal of Module-I is to provide the participants with the knowledge of the basic concepts of public health emergency and disaster preparedness and response.

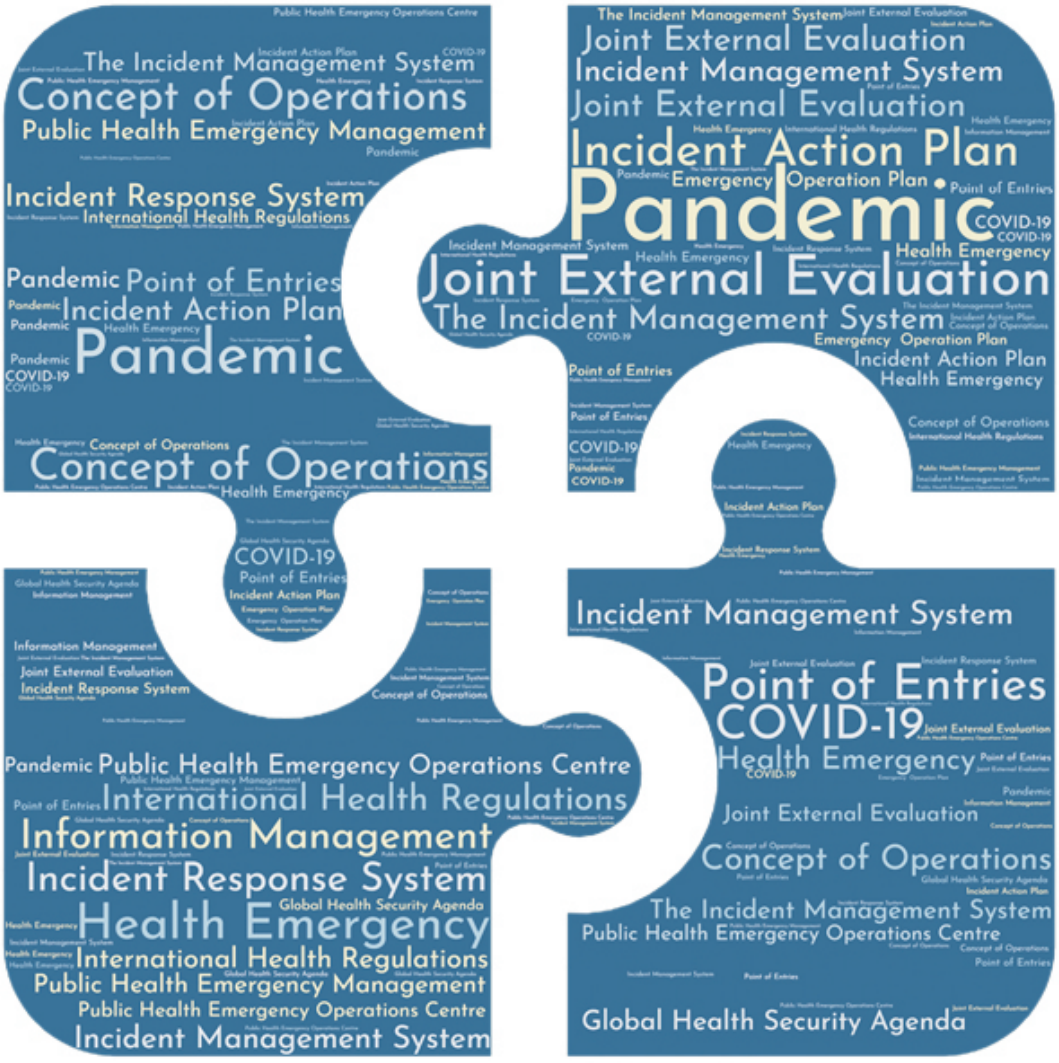


Figure: Jigsaw Puzzle in PHEDM

Learning Objectives

After completing this module, participants will be able to describe:

- The concept of Public Health Emergency and Disaster Management, One Health Approach
- The international and National framework for Public Health Emergency and Disaster Management
- The purpose and contents of the International Health Regulations (IHR 2005)
- The purpose of the Global Health Security Agenda (GHSA)
- The purpose of the WHO Framework for the establishment of a Public Health Emergency Operations Centre (PHEOC)
- The key concepts of the functions within a PHEOC and review the terms and abbreviations used in a PHEOC
- The purpose and value of an Emergency Operations Plan (EOP)
- The concepts of all-hazards response planning
- The purpose of the Concept of Operations (CONOPs)
- The Incident Management System (IMS)

Outline of the Module

Topic	Time
Module Overview	10 minutes
Lesson 1: Basics of Public Health Emergency and Disaster Management	45 minutes
Progress Check	15 minutes
Lesson 2: International and National Frameworks for Public Health Emergency and Disaster Management	45 minutes
Progress Check	15 minutes
Lesson 3: WHO Framework for Public Health Emergency Operations Centre (PHEOC) and updates from India	45 minutes
Progress Check	15 minutes
Lesson 4: Emergency Operations Plan (EOP)	45 minutes
Progress Check	15 minutes
Lesson 5: Hazard-Specific Response Plan/Annexes	40 minutes
Progress Check	15 minutes
Lesson 6: Incident Management System (IMS)	30 minutes
Progress Check	15 minutes
Module Summary	10 minutes
Total Time	≈ 6 hours

Lesson -1

Basics of Public Health Emergency and Disaster Management

Introduction

In this lesson, the focus is on the basics of Public Health Emergency and Disaster Management.

Learning Objectives

At the end of this section, you will be able to:

- Define Public Health Emergency and Disaster Management
- Understand common terms related to Public Health Emergency and Disaster Management

What is an Emergency?

A type of event or imminent threat that produces or has the potential to produce a range of consequences, and which requires coordinated action, usually urgent and often non-routine. Emergencies have effects that may be considered on a continuum from local emergencies with limited consequences to wide-area disasters with catastrophic consequences. Incidents or events are often referred to as emergencies, with the terms used interchangeably, but not all incidents or events are emergencies. (Reference- World Health Organization)

What is a Public Health Emergency (PHE)?

PHE means an occurrence or imminent credible threat of an illness or health condition, whether natural or man-made, which results or may result in substantial injury or harm to the public health from infectious disease, biological toxins, chemical agents, nuclear agents, radiation hazard or situations involving mass casualties or natural disasters.

Emergency Management

Emergency management is the organization and management of resources and responsibilities for dealing with all elements of emergencies. It involves the establishment of plans, structures and accountabilities to engage across government, the voluntary and private sectors for a comprehensive and coordinated approach to the emergency management cycle.

What is a Disaster?

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its resources. Though often caused by nature,

disasters can have human origins. (Reference- United Nations International Strategy for Disaster Reduction-UNISDR)

As per the National Disaster Management Act (2005), a disaster is defined as "a catastrophe, mishap, calamity or grave occurrence in any area, arising from the natural or man-made cause, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area". (Reference- Disaster Management Act 2005)

Disaster Management

As per the Disaster Management Act, 2005, "disaster management" means a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for Prevention, Mitigation, Preparedness, Response, Recovery and Rehabilitation.

One Health Approach

One Health Approach refers to the interface for coordination, collaboration and communication between human, animal, and the environment sectors for disease prevention and control in particular zoonotic diseases, anti-microbial resistance (AMR), etc.

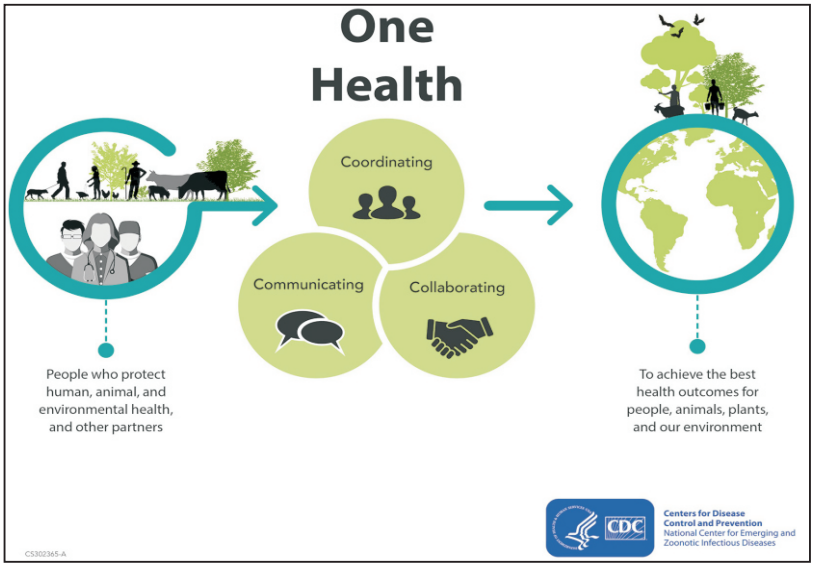


Figure: Concept of One Health (Source: https://www.cdc.gov/onehealth/basics/index.html)

WHO Glossary of Terms

The WHO Framework has provided a full glossary of terms to attain an in-depth understanding of the common language and terms which are given in Annexure II.

Lesson 1: Progress Check

Access the WHO glossary (given in Annexure II) to find the following terms. Take a moment and write the definition of each in your participant guide.

Health communication:

_____
_____
_____

Health emergency:

_____
_____
_____

Disaster:

_____
_____
_____

Emergency Management:

_____
_____
_____

Take a couple of minutes to review the glossary and look up any terms about which more information is needed.

(Please refer to Annexure-I for the key to the progress check.)

International and National Frameworks for Public Health Emergency and Disaster Management

Introduction

This lesson summarizes the various international and national frameworks in place for public health emergency and disaster management.

Learning Objectives

After this lesson, participants will be able to state the purpose of and describe the activities under the International Health Regulations (IHR) 2005 as well as develop a working understanding of other international and national frameworks in place for public health emergency and disaster management.

International Frameworks

International Health Regulations (IHR) 2005

It is an international legal instrument that is binding on 196 countries across the globe, including all 194 Member States of WHO. The WHO includes all UN Member States and two non-UN members, Niue and the Cook Island. It presents a shared responsibility for global health security, to prevent, protect against, control and provide a public health response to the international spread of disease and events which:

- Are commensurate with and restricted to public health risks, and
- Avoid unnecessary interference with international traffic & trade.

Rationale for IHR

- The spread of infectious diseases and events affecting health from one country to another is a well-known phenomenon. Disease agent(s) spread through air, sea and land routes by way of travellers, vectors, cargo and conveyance (aircrafts/ships/land vehicles).
- Before IHR, there was a lack of coordination among nations and hence unnecessary and unscientific travel restrictions were in practice. Quarantine has been practiced since the 16th century, often without sufficient evidence of effectiveness.

What did the Member States Agree to Do?

Member states have responsibilities regarding core capacities to detect, assess, report, and respond to Public Health events under Articles, 4, 5, 13, 44, and Annex I & II (Available on website: http://www.who.int/csr/ihr/en/). State parties have agreed to the common responsibilities.

Evolution of IHR

1830s	France convened the first International Sanitary Conference to explore agreement on harmonizing quarantine regulations for cholera, plague, and yellow fever.
1892	First International Sanitary Convention ratified.
1902 -1935	States created intergovernmental institutions [Pan American Sanitary Bureau (1902), Office International 'Hygiene Publique (1907), Health Organization of the League of Nations (1920)] to coordinate international public health measures.
1948	World Health Organization and its Governing Body, the World Health Assembly (WHA) created.
1951	WHA consolidated existing international sanitary conventions into the singular International Sanitary Regulations (covering plague, cholera, yellow fever, smallpox, typhus, relapsing fever).
1969	The renamed International Health Regulations (1969) replaced prior agreements.
1995	Ebola virus outbreak in Central Africa caught global attention and there were calls for revision of IHR.
2001	Links to Global Health Security Strategy.
2005	WHA adopted revised IHR 2005.
2007	IHR (2005) entered into force in 196 countries, beginning 5-year assessment and capacity building period.
2012	Core capacities implemented.

Need for revisions and IHR (2005)

- Earlier provisions had limited scope- applicable only to six diseases which were subsequently reduced to three- cholera, plague, and yellow fever.
- Notification of outbreak was voluntary. It depended on the country.
- No mandate for WHO to interfere or verify outbreaks or be involved in outbreak containment within the country.
- IHR was applicable only through Ports and Airports.
- No mechanism for solving disputes.
- Tremendous increase in international traffic & trade.
- Re-emergence of old diseases (Plague), the emergence of new diseases (SARS, H1N1, MERS-CoV, Ebola, Zika).
- Other threats resulting from events like the Bhopal gas tragedy, terrorism due to chemical agents, nuclear disasters etc.

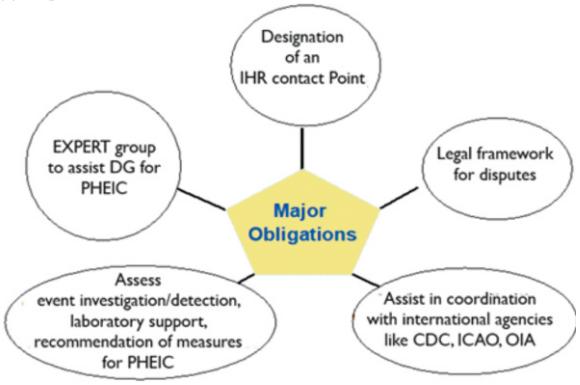


The International Health Regulations (2005), third edition is available on https://www.who.int/publications/i/item/9789241580496

Functions of IHR 2005

- Establishes a process for international collaboration and decision-making during public health emergencies.
- Requires reporting of specific diseases plus any potential international public health emergencies regardless of origin or source.
- Establishes a global network of 24x7 National Focal Points (NFP).
- Establishes core capacities for surveillance and response for all countries at all levels (local, regional, national).

Major obligations for WHO



Major obligations for Member States



National IHR Core Public Health Capacities

The core capacities are intended to:

- Reflect the operational meaning of the capacities required to detect, assess, notify, and report events, and to respond to public health risks and emergencies of national and international concern.

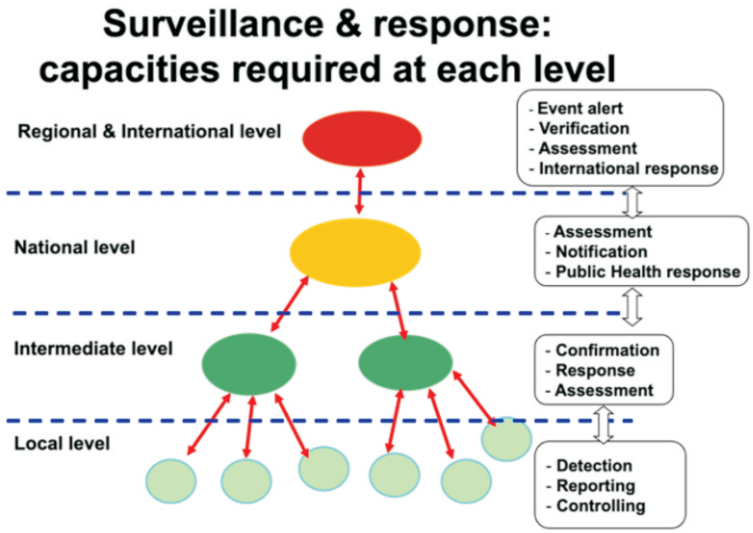
- Apply to a variety of hazards, including infectious disease, zoonotic events, food safety, chemical events, radio-nuclear events, events at the point of entry, and others.

Eight Core Capacities:

- Legislation and Policy
- Surveillance
- Preparedness
- Human Resources
- Coordination
- Response
- Laboratory
- Risk Communications

Potential Hazards covered:

- Chemical
- Biological
  - o Infectious
  - o Zoonosis
  - o Food Safety
- Radio Nuclear



Public Health Emergency of International Concern (PHEIC)

The International Health Regulations (IHR) 2005 defines Public Health Emergency of International Concern (PHEIC) as "an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease; potentially require a coordinated international response".

Who declares a PHEIC?

The responsibility of determining whether an event is within this category lies with the WHO Director-General and requires the convening of a committee of experts—the IHR Emergency Committee. Committee members are selected based on expertise, geographic and gender diversity.

This committee advises the Director-General on the recommended measures to be promulgated on an emergency basis, known as temporary recommendations, which require reviews every 3 months.

When is a PHEIC declared?

The IHR decision instrument poses 4 critical questions:

- Is the public health impact of this event serious?
- Is the event unusual or unexpected?
- Is there a significant risk of international spread?
- Is there a significant risk of international trade or travel restrictions?

Any outbreak that meets two or more of the four criteria needs to be notified to WHO under Article 6 of the IHR (2005).

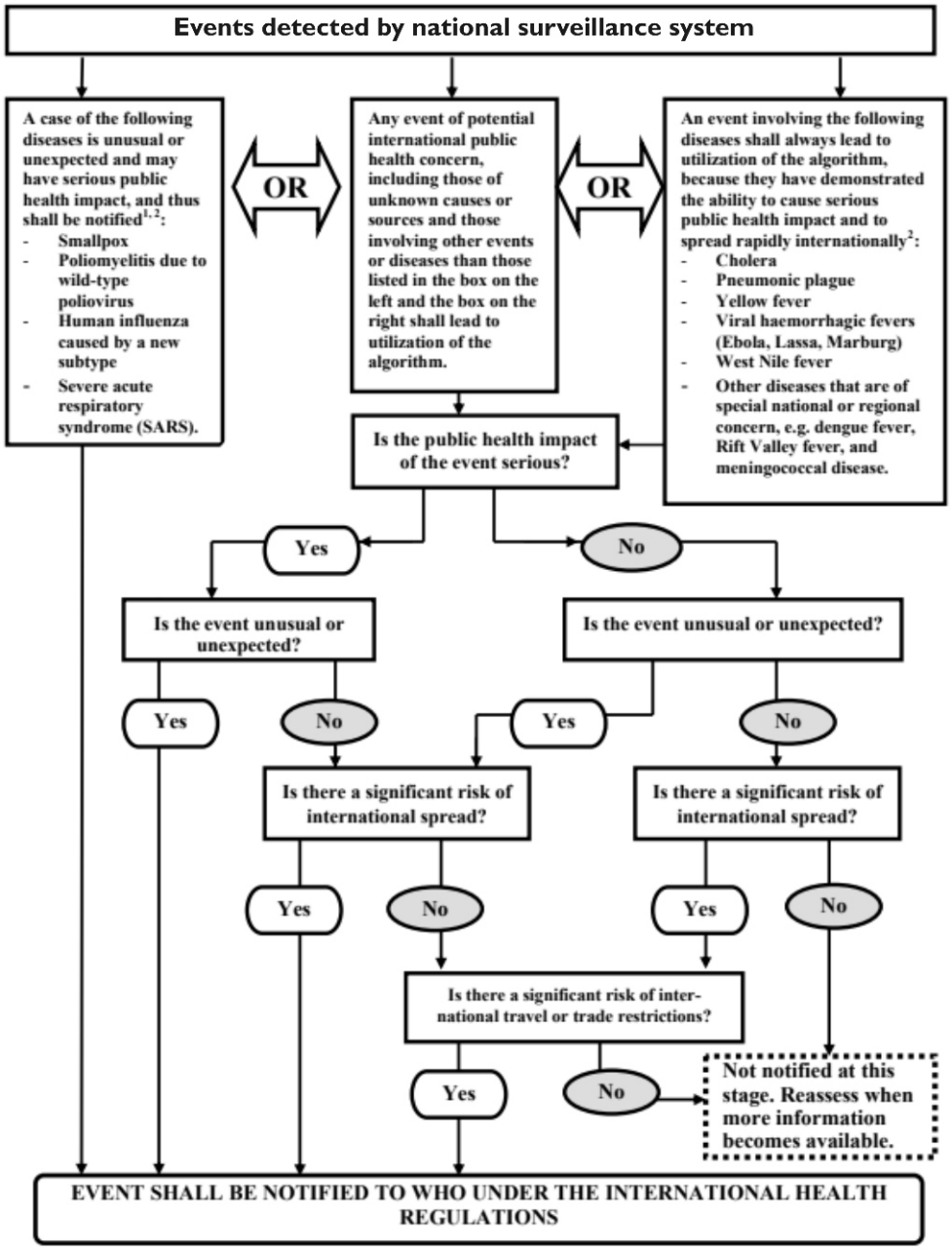
Notification

- All events which may constitute a public health emergency of international concern needs to be notified within 24 hours of assessment of public health information.
- There must be continued reporting—with timely, accurate and sufficiently detailed public health information to support development of risk assessment, case definition and guidance for treatment and case management.

PHEICs declared in the past (Source: WHO)

PHEIC	Date of Declaration	Countries affected at the time of declaration
Swine Flu (H1N1)	25 April, 2009	Mexico, USA
Poliovirus	5 May, 2014 (Remains a PHEIC)	Afghanistan, Cameroon, Equatorial Guinea, Ethiopia, Israel, Nigeria, Pakistan, Somalia, and the Syrian Arab Republic
Ebola	8 August, 2014	West Africa (Guinea, Liberia, Nigeria and Sierra Leone)
Zika	1 February, 2016	Brazil, France, United States of America, and El Salvador
Ebola	17 July, 2019	Democratic Republic of Congo (in the northeast, specifically in North Kivu and Ituri, Goma), Uganda (Kasese)
COVID-19	30 January, 2020	China, Japan, Korea, Vietnam, Singapore, Australia, Malaysia, Cambodia, Philippines, Thailand, Nepal, Sri Lanka, India, USA, Canada, France, Finland, Germany and United Arab Emirates

IHR 2005 through its Annex 2 provides a decision instrument for the assessment and notification of events that may constitute a Public Health Emergency of International Concern.



[1] As per WHO case definitions.
[2] The disease list shall be used only for the purposes of these Regulations.

Figure: IHR 2005, Annex 2, Page No.-43
(Source: https://apps.who.int/iris/rest/bitstreams/1031116/retrieve)

Global Health Security Agenda

The Global Health Security Agenda (GHSA) was launched in February 2014 in response to the global threat that infectious diseases constitute in our increasingly interconnected world. It is a network of 70 countries (including India), as well as international and non-government organizations, and private sector companies, with the following key objectives:



Figure: IHR & GHSA

- Emphasize global health security as a national leader-level priority
- Accelerating the achievement of the core capacities required by the World Health Organization's (WHO's) International Health Regulations (IHR); the World Organization of Animal Health's (WOAS) Performance of Veterinary Services (PVS) Pathway; and other relevant global health security frameworks.

IHR provides an essential set of public health goals. GHSA provides a roadmap to assist countries in achieving core capacities agreed to in the International Health Regulations (2005).

GHSA Action Packages:

The purpose of Action Packages and the underlying Prevent-Detect-Respond framework is to:

- Focus international discussion towards specific, coordinated actions in support of the GHSA.
- Highlight measurable approaches that countries can adopt to accelerate, monitor and report GHSA progress.
- Provide a mechanism by which countries can make specific commitments and take leadership roles in the GHSA.



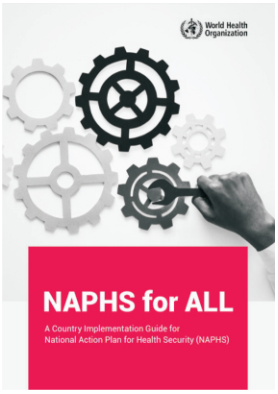
Figure: GHSA Action Packages

National Action Plan for Health Security (NAPHS) for All

A National Action Plan for Health Security (NAPHS) is a country owned, multi-year, planning process that can accelerate the implementation of IHR core capacities and is based on the One Health and whole-of-government approach for all hazards.

WHO has developed a NAPHS framework to consolidate technical guidance to countries for NAPHS development and implementation.

It can be accessed at https://www.who.int/publications/i/item/naphs-for-all---a-country-implementation-guide-for-naphs



Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. 17 Goals were adopted by all United Nations Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the goals (https://www.un.org/sustainabledevelopment/development-agenda/).



Figure: Pictorial representation of SDG's Individual Goals

Goals specific to Public Health Emergency and Disaster Management:

According to the UN Office for Disaster Risk Reduction (UNDRR), several goals of SDGs (and their respective targets) are relevant for public health emergency and disaster management. This includes Goals 1, 2, 3, 4, 6, 9, 11, 13, 14, 15.

For further details visit: https://www.preventionweb.net/sustainable-development-and-drr/sdgs-targets-related-disaster-risk

Sendai Framework

The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) was the first major agreement of the post-2015 development agenda and provides Member States with concrete actions to protect development gains from the risks of disaster.

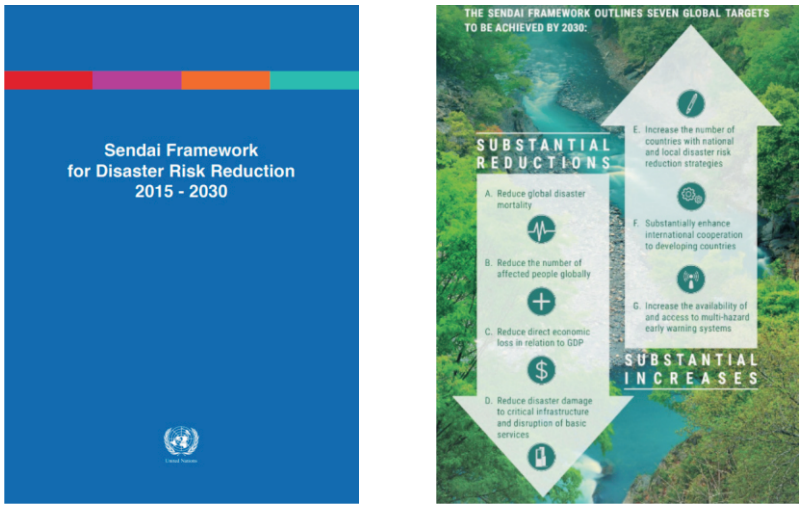


Figure: Sendai Framework for DRR
(Source: https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030)

It recognizes that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local government, the private sector and other stakeholders.

Priorities:

I. Understanding disaster risk
II. Strengthening disaster risk governance to manage disaster risk
III. Investing in disaster risk reduction for resilience
IV. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction

For further reading, https://www.undrr.org/implementing-sendai-framework/what-sendai-framework

Other international frameworks to which Government of India is a signatory

- Paris Agreement on Climate Change at the 21st Conference of Parties (COP 21), under the United Nations Framework Convention on Climate Change in December 2015. (https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement)
- Coalition of Disaster Resilient Infrastructure (CDRI) in 2019. (https://www.cdri.world)

National Frameworks

Constitution of India

The Constitution of India in its Article number 47 states that "Duty of the State to raise the level of nutrition and the standard of living and to improve public health". (https://legislative.gov.in/sites/default/files/COI.pdf)

The Constitution in its Seventh Schedule has listed different functions pertaining to public health emergencies in Union, State and Concurrent List as under:

Union List:

- Port quarantine, including hospitals connected therewith, seamen's and marine hospitals.

State List:

- Public Health and sanitation; hospitals and dispensaries.

Concurrent List:

- Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants
- Adulteration of foodstuffs and other goods.
- Legal, medical, and other professions.

High Power Committee (HPC) on Disaster Management (Pant Committee)-1999

The Committee identified and classified disasters, and suggested broad issues for prevention and control of biological hazards like:

Surveillance and rapid response activities

- Laboratory support to diseases of international public health importance.
- Creating a network of national laboratories that can provide support for early diagnosis of these infections and harness the expertise available.
- Establishment of a Control Room in National Institute of Communicable Diseases (NICD), now National Centre for Disease Control (NCDC).

For further reading, visit: https://www.preventionweb.net/files/1633_ch3.pdf

Disaster Management Act, 2005

Under the Disaster Management Act 2005, National Disaster Management Authority (NDMA) is mandated to lay down the policies, plans and guidelines for Disaster Management. National Institute of Disaster Management (NIDM) has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation and policy advocacy in the field of disaster management.

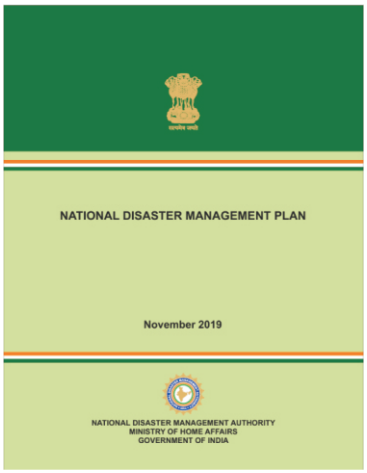
For a specialized response to a threatening disaster situation or emergencies both natural and man-made such as those of CBRN origin, the Act has mandated the constitution of a National Disaster Response Force (NDRF). For further reading, visit: https://legislative.gov.in/sites/default/files/A2005-53.pdf

National Disaster Management Plan 2019

The National Disaster Management Plan (NDMP) provides a framework and direction to the government agencies for all phases of disaster management cycle. The NDMP is a "dynamic document" in the sense that it will be periodically improved keeping up with the emerging global best practices and knowledge base in disaster management.

It is in accordance with the provisions of the DM Act 2005, the guidance given in the National Policy on Disaster Management (NPDM) 2009, and the established national practices.

For further reading, visit: https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf



Prime Minister's Ten Point Agenda on Disaster Risk Reduction (DRR)

The Prime Minister, Shri Narendra Modi, enunciated a Ten-Point Agenda in his inaugural speech at the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2016, held in New Delhi during November 2016, which has also been incorporated in the NDMP. (https://ndma.gov.in/Governance/PM-10-Agenda)

The ten key elements consist of the following:

1. All development sectors must imbibe the principles of disaster risk management

2. Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states
3. Women's leadership and greater involvement should be central to disaster risk management
4. Invest in risk mapping globally to improve global understanding of Nature and disaster risks
5. Leverage technology to enhance the efficiency of disaster risk management efforts
6. Develop a network of universities to work on disaster-related issues
7. Utilise the opportunities provided by social media and mobile technologies for disaster risk reduction
8. Build on local capacity and initiative to enhance disaster risk reduction
9. Make use of every opportunity to learn from disasters and, to achieve that, there must be studies on the lessons after every disaster
10. Bring about greater cohesion in international response to disasters

Epidemic Diseases Act 1897 Amended in 2020

The Act specifies that the central government may regulate:

- Detention of any person intending to travel from the port, during an outbreak.
- The amendment expanded the powers of the central government to regulate the inspection of any bus, train, goods vehicle, ship, vessel, or aircraft leaving or arriving at any land port or port or aerodrome.
- Protection for healthcare personnel and damage to property: No person can: (i) commit or abet the commission of an act of violence against a healthcare service personnel, or (ii) abet or cause damage or loss to any property during an epidemic. These offences are cognizable and non-bailable.

For further reading, visit: https://egazette.nic.in/WriteReadData/2020/222125.pdf

Public Health Laws Enacted by States

- Andhra Pradesh, Assam, Delhi, Goa, Madhya Pradesh, Maharashtra, Tamil Nadu, and Uttar Pradesh have their own public health acts.
- Both Andhra Pradesh and Tamil Nadu enforced the law in 1939 and have amended it from time to time. Madhya Pradesh's law was put in place in 1949 whereas Goa formulated a public health act in 1985. In Uttar Pradesh, the law was framed in 2020, after the COVID-19 breakout.

However, other States are yet to roll out public health specific legislation.

National Public Health Bill (Draft)

- In 2017, the draft of the Public Health (Prevention, Control and Management of Epidemics, Bio-terrorism and Disasters) Bill, 2017 was released.

- The draft Bill proposes a four-tier health administration architecture, with "multisectoral" national, state, district and block-level public health authorities who will have "well defined" powers and functions to deal with "public health emergencies".
- These authorities will have powers to take measures for the prevention of non-communicable diseases and emerging infectious diseases.
- The proposed law also provides for creation of public health cadres at national and state levels.
- The draft lays down several situations in which "public health emergency" can be declared, including bioterrorism, appearance of a novel or previously controlled or eradicated infectious agent or biological toxins, natural disaster, chemical attack or accidental release of chemicals and nuclear attack or accident.

For further reading, visit: https://main.mohfw.gov.in/sites/default/files/Inviting%20Comments%20on%20Draft%20Public%20Health%20Bill%2C%202017.pdf

International Health Regulations, 2005: Core Capacities in India

National Focal Point for IHR in India

Under the Regulations, National IHR Focal Points are to play an important role in implementing the Regulations at the national level and maintaining a continuous official communication channel between WHO and States Parties.

In India, the Ministry of Health & Family Welfare (MoHFW), supported by the National Centre for Disease Control (NCDC) and Integrated Disease Surveillance Programme (IDSP) act as the National Focal Point for IHR. (https://cdn.who.int/media/docs/default-source/searo/whe/list-of- national-ihr-nfp-and-who-contact-points.pdf?sfvrsn=76bb1810_5)

Surveillance

- The **Integrated Disease Surveillance Programme (IDSP)** was launched with the mission to strengthen disease surveillance in the country by establishing a decentralized state-based surveillance system for epidemic-prone diseases to detect the Early Warning Signals (EWS), so that timely and effective public health actions can be initiated in response to health challenges in the country at the National, State and District level.
    - o Central surveillance Unit (CSU) is established and integrated with the National Centre for Disease Control, Delhi Surveillance units have been set up at all states and district Headquarters.
    - o Media scanning and verification cell was established under IDSP in July 2008. It detects and shares media alerts with concerned state/districts for verification and response.
- **Integrated Health Information Platform (IHIP)** is the next-generation refined version of the IDSP, synced with the National Digital Health Mission. It will track 33 diseases (as compared to the earlier 18 diseases) and will ensure near-real-time data in digital mode, accessible at all levels, with:

- Advanced data modelling and analytical tools.
- Geographic Information System (GIS) enabled Graphical representation of data into integrated dashboard.
- Role and hierarchy-based feedback and alert mechanisms.
- Geo-tagging of reporting health facilities.
- Scope for data integration with other health programs.

For further reading, visit: https://ihip.nhp.gov.in/idsp/#!/

Response

- **Strategic Health Operations Centre (SHOC), IDSP**
  - Provides a single-point contact facility for emergency management.
  - Provides a facility for an emergency team, to manage information & resources for disease surveillance and outbreak response and key decision makers to operate in the event of an emergency, disease outbreak or crisis of any nature.
  - Triggering events include epidemic-prone infectious disease outbreak, multi-state/UT involvement, overwhelmed Outbreak Monitoring Cell, request from MoHF&W, high media profile and potential PHEIC

For further reading, visit: https://idsp.nic.in/index4.php?lang=1&level=0&linkid=418&lid=3709

- **Emergency Medical Relief (EMR) Division, MoHFW, Government of India**

Relevant activities include:

- Health sector disaster preparedness and primary response
- Human Resource Development for Emergency Medical Services.
- Managing Public Health Emergencies of International/National concern through
  a) Setting up of 24X7 control room.
  b) Co-ordinating national response.
  c) Organizing and deploying Rapid Response Teams as necessary.

For further reading, visit: https://dghs.gov.in/content/1341_1_EmergencyMedicaRelief.aspx

- **Rapid Response Teams (RRTs)** may be activated at the District Level on the advice of the District Surveillance Officer (DSO). It may also be activated at the State and National levels. It is usually a multi-disciplinary team consisting of an epidemiologist, clinician, microbiologist, and other specialists as per requirement. It is tasked with
  - Investigation and confirmation of outbreak
  - Assessment of the local situation and available resources
  - Assisting local health staff in controlling the outbreak
  - Follow-up of control measures undertaken

Preparedness

- Disaster management plans for Chemical, Biological, and Radio-Nuclear (CBRN) have been developed by the NDMA to manage disasters in an effectively manner. However, all-hazard plans for public health emergencies have not been developed. Some hazard-specific guidelines have been prepared, for eg. Public Health Guidelines for Flood Events, NCDC (https://ncdc.gov.in/WriteReadData/l892s/95276575411596609841.pdf)
- Capacity building of police, airport and seaport staff with regard to CBRN emergencies with a specific strengthening of districts with nuclear power plants.
- IDSP prepares its project implementation plan (PIP) on an annual basis under National Health Mission (NHM) Framework, which takes into account the prevention, preparedness and response for epidemic-prone diseases including pandemic preparedness in coordination with related Departments.

For further reading, visit: https://ndma.gov.in/Governance/Guidelines

Laboratory networks

- Existing public health laboratory networks under IDSP to be strengthened.
- Referral lab network: Under this network, services of existing functional laboratories (at government medical colleges) are being used to allow access to quality laboratory services for the investigation of outbreaks in the linked districts.
- Guidelines for Integrated Public Health Laboratories were released in 2021 to provide a strategy for strengthening capacity. The guidelines propose a notional structure for integrated public health laboratories, as seen in the Figure below. (https://nhsrcindia.org/sites/default/files/Guidelines%20on%20integrated%20public%20health%20laboratories_dt%2007%20jan.pdf)

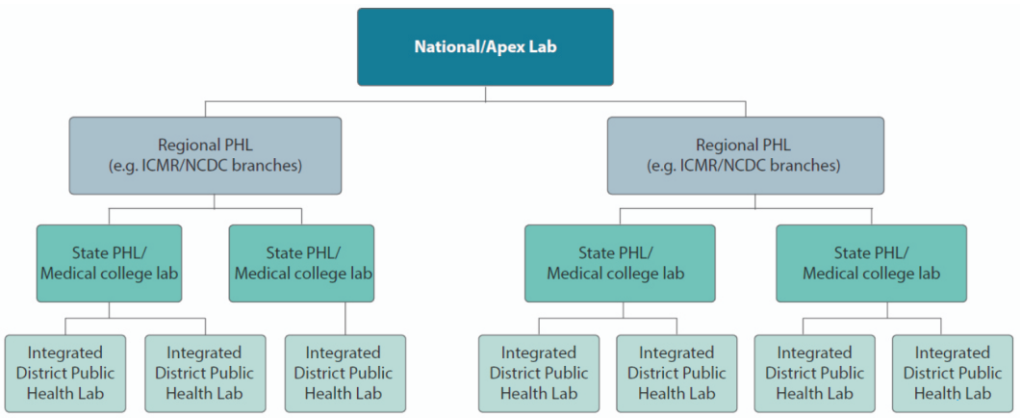


Figure: Integrated Public Health Laboratory Network

- The **Indian SARS-CoV-2 Genomics Consortium (INSACOG),** jointly initiated by the Union Health Ministry of Health, and Department of Biotechnology (DBT) with Council for Scientific & Industrial Research (CSIR) and Indian Council of Medical Research (ICMR), is a consortium of 38 laboratories to monitor the genomic variations in the SARS-CoV-2.

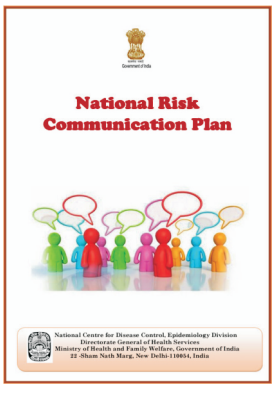
For further reading, visit: https://dbtindia.gov.in/insacog

Human Resource and Capacity Building

Several steps have been taken to develop human resources for India's public health emergency preparedness and response.

- NCDC conducts following training programs:
  - 2 years advanced EIS Training Programme (also conducted by WHO India and the National Institute of Epidemiology)
  - Regional Field Epidemiology Training Programme (FETP)
  - Regional Training Programme on Prevention and Control of Communicable Diseases for paramedics.
- Capacity building for public health emergency management conducted by the National Institute of Health and Family Welfare (NIHFW).
- NIDM also focuses on human resource development, capacity building, training, research, documentation and policy advocacy in the field of disaster management.
- Training of human resources at the regional level from PoEs, IDSP, hospitals and labs.
- The National Medical Commission has implemented changes to the undergraduate medical curriculum to include necessary competency on disaster management, describe the details of the National Disaster Management Authority etc. (https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-III.pdf)

Risk Communication Strategies



- It refers to the exchange of real-time information, advice and opinions between experts and people facing threats to their health, economic or social well-being. The right message at the right time from the right person can save lives. Through effective communication, we can impact how our community responds to and recovers from these potentially devastating emergencies.
- The National Risk Communication Plan, developed by the NCDC, comprehensively addresses risk communication with regard to IHR 2005.

For further reading, visit: https://ncdc.gov.in/WriteReadData/l892s/File593.pdf

Monitoring and Evaluation Framework

Being adequately prepared to manage these infectious disease outbreaks is a challenge for many countries. IHR (2005) Monitoring and Evaluation Framework (MEF) provides a roadmap for assessing a country's health security capacity, enabling them to identify areas for improvement.

IHR MEF is composed of four processes:

- States Parties Self-Assessment Annual Reporting (SPAR),

- Joint External Evaluations (JEE),
- After Action Reviews (AAR),
- Simulation Exercises (SimEx)

The SPAR is a mandatory process under IHR (2005); the JEE, AAR, and SimEx are voluntary.

Together, these provide a comprehensive approach to assessing a country's health security capacity and developing recommendations for addressing associated gaps.

Additionally, the results of the JEE and other country-based assessments can be used to guide the development of National Action Plans for Health Security (NAPHS). The NAPHS aims to address gaps in a country's health security capacity through a system that aligns with the JEE's recommendations.

When used together, these processes can help governments improve their preparedness against infectious disease threats, gain domestic support for health security work, and direct partners to the areas where more support is needed.

The IHR Core Capacities Monitoring Framework (2013) is available on https://apps.who.int/iris/rest/bitstreams/302086/retrieve.

Country progress may be checked at the WHO Strategic Partnership for Health Security and Emergency Preparedness Portal (https://extranet.who.int/sph/country/india)

Lesson 2: Progress Check

1. What are the major obligations of the member states with respect to International Health Regulations, 2005?

_____

_____

_____

2. What are the 4 questions asked in order to decide whether an event constitutes a PHEIC or not?

_____

_____

_____

3. What is the difference between IHR and GHSA?
   a. IHR is the roadmap and GHSA is the process to reach public health goals.
   b. IHR is the process and GHSA is the roadmap to reach public health goals.
   c. IHR is the exercises and GHSA is the policies.
   d. IHR is the training and GHSA is the exercises

4. In which category do the GHSA action package working groups address antimicrobial resistance, zoonotic diseases, biosafety/biosecurity, and immunization?
   a. Prevent
   b. Detect
   c. Prepare
   d. Respond

5. RRTs consist of
   a. An epidemiologist
   b. A clinician and
   c. A microbiologist.
   d. All of the above

6. Name some response mechanisms existing in the national framework to fulfil IHR core capacities.

_____

_____

_____

(Please refer to Annexure-I for the key to the progress check.)

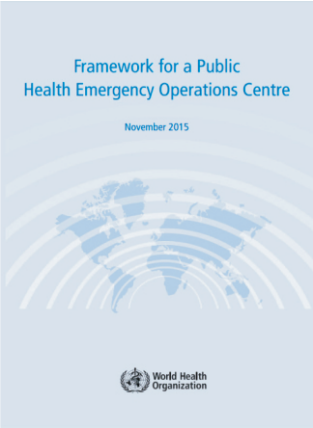
WHO Framework for Public Health Emergency Operations Centre (PHEOC) and updates from India

Introduction

The WHO Framework provides high-level methodical guidance for designing, developing, and strengthening public health emergency operations centres. This framework outlines the key concepts and essential requirements for developing and managing a PHEOC to achieve a goal-oriented response to public health emergencies and a unity of effort among response agencies.

This document is a result of expert consultations and systematic reviews of literature, existing standards of practice, and PHEOC information systems and related applications. The publication can be accessed from the following weblink: https://www.who.int/publications/i/item/framework-for-a-public-health-emergency-perations-centre

The framework has been revised further and a supplement concept note is available on https://www.who.int/publications/i/item/framework-for-a-public-health-emergency-operations-centre



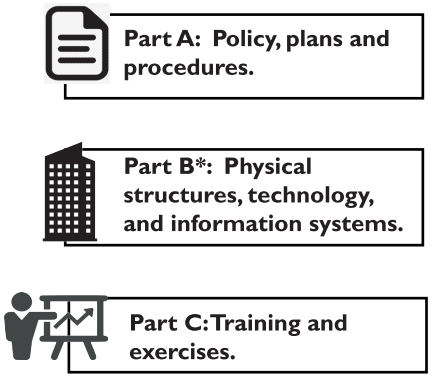
Learning Objectives

At the end of this section, you will be able to describe:

- The importance of a PHEM programme.
- The purpose of the WHO Framework for Public Health Emergency Operations and the key concepts of PHEOC.

PHEM Programme Development: Handbooks to Support the Framework

To further support the development and implementation efforts, WHO created three handbooks to provide more detailed guidance. They are:



*Part B: Physical structures, technology, and information systems are in development and not published as of this training

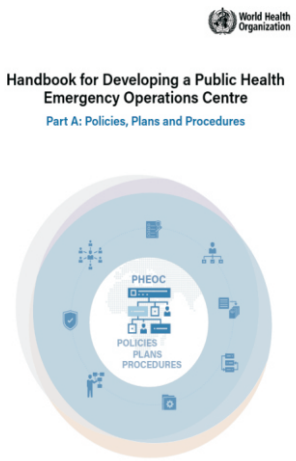
Handbook Part A: Policies, Plans, and Procedures

Based on the "all-hazards" (entire spectrum of emergency risks and events) approach to emergency management recommended in the Framework, this document:

- provides practical guidance for public health authorities and PHEOC planners and staff on the general policies, planning processes, outcomes and operational procedures necessary to support a viable PHEOC;
- includes descriptions of best practice and recommended contents of plans and procedures".

The Handbook for Developing a Public Health Operations Centre Part A: Policies, Plans, and Procedures should be used alongside the PHEOC Framework. Framework information is not repeated since the intent of the handbook is to expand on concepts in the Framework.

The Handbook for Developing a Public Health Operations Centre Part A: Policies, Plans, and Procedures is available at: https://apps.who.int/iris/bitstream/handle/10665/277191/9789241515122-eng.pdf?sequence=1&isAllowed=y

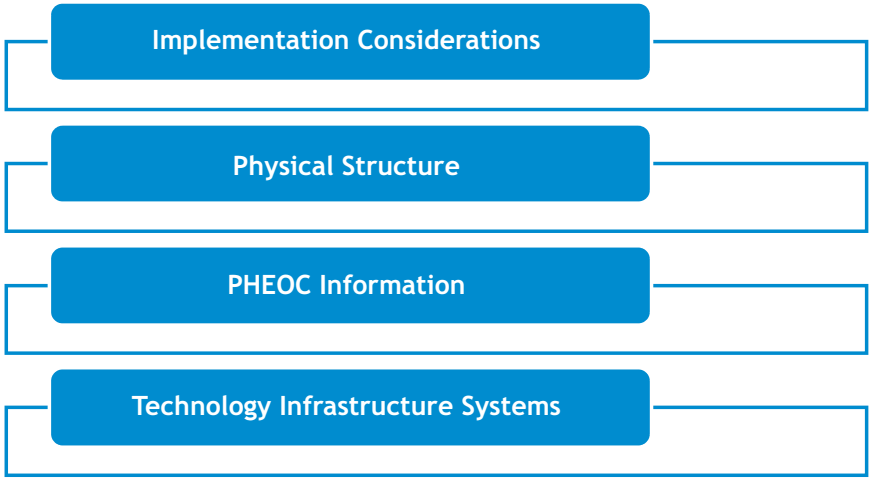


Handbook Part B: Physical Structures, Technology, and Information Systems

"The Physical Structures, Technology, and Information Systems (PTIS) handbook is intended as a practical guide for planners, decision-makers, Information Technology support, and others involved in designing, implementing, and managing a PHEOC". Handbook B: Physical Structures, Technology, and Information Systems provides general answers to the needed infrastructure and the:

- Advantages and disadvantages of various options.
- Requirements of a PHEOC Information System.
- PHEOC facility and information system implementation information.

The body of this document includes four chapters to address specific areas, as illustrated below:



Physical Structure

Physical Structure section outlines requirements for the PHEOC physical site and building, space layout, support services and equipment, and furniture for PHEOC personnel.

Technology Infrastructure

Technology Infrastructure defines Information and Communication Technology (ICT) facilities, hardware, and services that provide essential support for PHEOC functions.

PHEOC Information Systems

PHEOC Information Systems describes how to design a PHEOC Information System, the stakeholders that utilize the information system, and their requirements for information and data.

Implementation Considerations

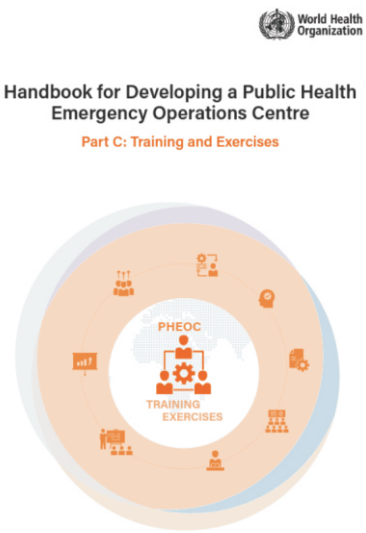
Implementation Considerations list key steps for implementing a PHEOC and discussions on major considerations, including human resources, training, maintenance, etc. that users of this handbook may encounter at various stages.

Handbook Part C: Training and Exercises

"A rigorous and effective training and exercise program are fundamental to developing the preparedness of PHEOCs and ultimately, through continuous improvement, to achieving a state of readiness to manage public health emergency events. All PHEOC staff should receive emergency management training and should regularly practice working as a team in response to simulated public health emergencies. To be able to respond effectively, it is also important that PHEOCs adopt a common approach to preparedness; this is especially relevant in the event of a Public Health Emergency of International Concern (PHEIC)".

Training consists of activities and courses that are intended to develop and improve the knowledge, skills, and abilities of emergency responders.

The Handbook C: Training and Exercises is available on: https://apps.who.int/iris/bitstream/handle/10665311545/9789241515139-eng.pdf?sequence=1&isAllowed=y



WHO Framework for PHEOC

Emergency Operation Centre (EOC):

An EOC is the physical location where an organisation comes together during an emergency to coordinate response and recovery actions and resources. These centres may be alternatively called command centres, control rooms, situation rooms, crisis management centres, or using other similar terms. Regardless of the term, this is where the coordination of information and resources takes place. During an emergency, the EOC is operational round the clock. The EOC is under direct command of the head of the disaster management agency.

Public Health Emergency Operations Centre (PHEOC):

It is an Emergency Operations Centre (EOC) that specializes in the command, control, and coordination requirements of responding to emergencies that involve health consequences and public health threats.

For example, during a public health emergency, a PHEOC will:

- Deploy scientific experts.
- Coordinate delivery of supplies and equipments to the incident site if requested.
- Monitor response activities.
- Provide information and guidance to regional public health departments.



Figure: Emergency Operations Control Room, Directorate of Public Health and Preventive Medicine (DPH&PM), Chennai, Tamil Nadu (Photo Credit: Dr B. Premkumar)

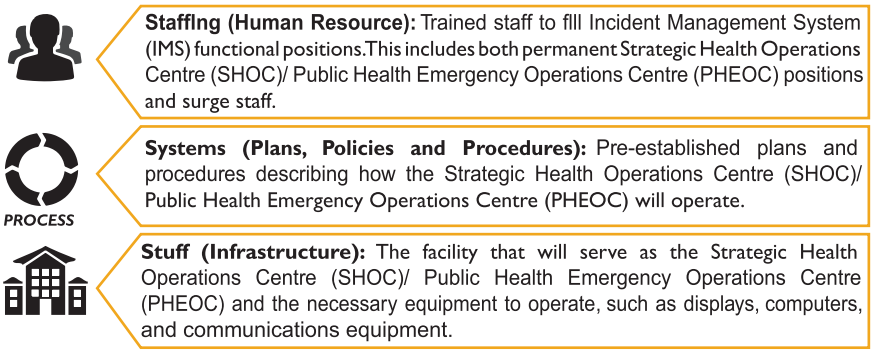
As per the WHO Framework, a public health emergency operations centre is a physical location for the coordination of information and resources to support incident management activities. Such a centre may be a temporary facility or may be established in a permanent location. EOCs may also be referred to as 'Situation Rooms,' 'Operations Centres,' 'Command Centres', 'Coordination Centres', 'War Room', 'Control Room', 'Strategic Health Operation Centre (SHOC)', 'Public Health Emergency Operation Centre', 'Public Health Emergency Response Centre' and other similar terms. This Framework outlines the concepts and requirements for developing and managing a PHEOC. A PHEOC strives to achieve a goal-oriented response to public health emergencies and a unity of effort among response agencies.

Purpose of PHEOC:

The purpose of a PHEOC is to:

- support public health response needs.
- provide the capability to receive, analyze, display, and monitor incident information.
- identify, organize, deploy, and track resources.
- communicate, collaborate, and coordinate from a centralized location.

Essential Elements of PHEOCs: The three essential elements for establishing and operating a PHEOC include staffing, systems, and stuff.



Key Concepts of PHEOC: The PHEOC is part of a public health emergency management program of risk analysis, preparedness, response, and recovery. The program includes, but is not limited to:

- Prevention and mitigation of hazards.
- Enhancing readiness by stockpiling response resources.
- Establishing related institutional and technical capacities and capabilities (e.g., laboratories, community clinics, and rapid response teams).
- Implementing a public health surveillance program.
- Enhancing the environmental health program.
- Engaging communities.
- Training staff and validating plans.

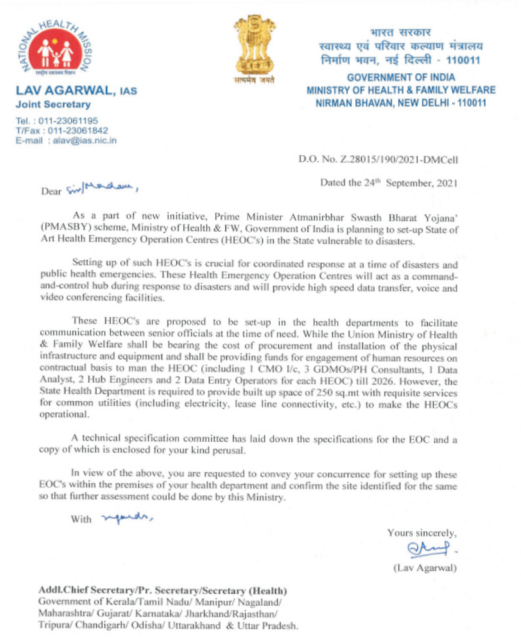
Information and resources required to support an incident: When a public health emergency incident is in place, the following are the information and resources that are required to support the response to the incident. It is important to note that the response will depend on the availability of information and resources at the local level.

- Case/fatality counts
- Experts (Scientific/Medical/Para-medical/Nursing/Lab,etc.)
- Resources (medicine, medical supplies, water, food, etc.)
- Communications equipment and identification of effective information channels
- Technical capabilities (labs, clinics, hospitals, etc.)

Establishment of HEOCs in India

The Ministry of Health & Family Welfare (MoHFW), Government of India (GoI) issued an D.O. No. Z.28015/190/2021-DMCell dated 24 September 2021 regarding the new initiative 'Prime Minister Atmanirbhar Swasth Bharat Yojana' (PMASBY) to set up State of Art Health Emergency Operation Centres (HEOC's) in the State vulnerable to disasters. This Demi Official (D.O.) shown below was issued to Additional Chief Secretary/Pr. Secretary/Secretary (Health) of the following States/UTs:

1. Chandigarh
2. Gujarat
3. Jharkhand
4. Karnataka
5. Kerala
6. Maharashtra
7. Manipur
8. Nagaland
9. Odisha
10. Rajasthan
11. Tamil Nadu
12. Tripura
13. Uttarakhand
14. Uttar Pradesh



LAV AGARWAL, IAS
Joint Secretary
Tel. : 011-23061195
T/Fax : 011-23061842
E-mail : alav@ias.nic.in

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली - 110011
GOVERNMENT OF INDIA
MINISTRY OF HEALTH & FAMILY WELFARE
NIRMAN BHAVAN, NEW DELHI - 110011

D.O. No. Z.28015/190/2021-DMCell

Dated the 24th September, 2021

Dear Sir/Madam,

As a part of new initiative, Prime Minister Atmanirbhar Swasth Bharat Yojana' (PMASBY) scheme, Ministry of Health & FW, Government of India is planning to set-up State of Art Health Emergency Operation Centres (HEOC's) in the State vulnerable to disasters.

Setting up of such HEOC's is crucial for coordinated response at a time of disasters and public health emergencies. These Health Emergency Operation Centres will act as a command-and-control hub during response to disasters and will provide high speed data transfer, voice and video conferencing facilities.

These HEOC's are proposed to be set-up in the health departments to facilitate communication between senior officials at the time of need. While the Union Ministry of Health & Family Welfare shall be bearing the cost of procurement and installation of the physical infrastructure and equipment and shall be providing funds for engagement of human resources on contractual basis to man the HEOC (including 1 CMO I/c, 3 GDMOs/PH Consultants, 1 Data Analyst, 2 Hub Engineers and 2 Data Entry Operators for each HEOC) till 2026. However, the State Health Department is required to provide built up space of 250 sq.mt with requisite services for common utilities (including electricity, lease line connectivity, etc.) to make the HEOCs operational.

A technical specification committee has laid down the specifications for the EOC and a copy of which is enclosed for your kind perusal.

In view of the above, you are requested to convey your concurrence for setting up these EOC's within the premises of your health department and confirm the site identified for the same so that further assessment could be done by this Ministry.

With regards,

Yours sincerely,

(Lav Agarwal)

Addl.Chief Secretary/Pr. Secretary/Secretary (Health)
Government of Kerala/Tamil Nadu/ Manipur/ Nagaland/
Maharashtra/ Gujarat/ Karnataka/ Jharkhand/Rajasthan/
Tripura/ Chandigarh/ Odisha/ Uttarakhand & Uttar Pradesh.

The 'Prime Minister Atmanirbhar Swasth Bharat Yojana' (PMASBY) scheme has been renamed as 'Pradhan Mantri-Ayushman Bharat Health Infrastructure Mission' (PM-ABHIM) as per the Cabinet approval on 15 September 2021. It proposed a shift from response-driven operations to sustainable, resilient public health infrastructure through various initiatives, including:

- Setting up of 15 Health Emergency Operations Centres (HEOCs).
- Operationalisation of 17 new Public Health Units and strengthening of 33 existing Public Health Units at Points of Entry, including 32 Airports, 11 Seaports and 7 land crossings.

Technical specifications and SOPs for setting up HEOC released by MoHFW highlights on:

1. Essential features of HEOC
2. Broad specifications for Physical infrastructure, Office Equipment and Supplies, Physical safety and security, Technology infrastructure, Telecommunication & Networking Infrastructure, and HEOC Information System
3. Detailed annexures for setting up HEOC are also provided by MoHFW
    - Annexure 1- The System Design Architecture
    - Annexure 2- The Information Flow Chart
    - Annexure 3- Model Layout
    - Annexure 4- Detailed Specification of Physical Infrastructure of Emergency Operations Centre
    - Annexure 5- Detailed Specifications for the equipment required for the technological infrastructure
    - Annexure 6- Detailed Specifications for the equipment required for the telecommunications and networking infrastructure

Lesson 3: Progress Check

I. According to the WHO Framework, a public health emergency operations centre (PHEOC) is a physical location for the coordination of _____ and _____ to support incident management activities for any type of incident.

II. A PHEOC is an emergency operations centre (EOC) that specializes in the _____, _____, and _____ requirements of responding to emergencies that involve health consequences and public health threats.

III. What are the purposes of a PHEOC?

_____

_____

IV. The PHEOC must have well-trained _____, _____, and _____.

V. Handbook B: Physical Structures, Technology, and Information Systems is intended as a practical guide for _____, decision-makers, IT support, and others involved in designing, implementing, and managing a PHEOC.

a. Thinkers
b. Construction workers
c. Planners
d. Epidemiologists

(Please refer to Annexure-I for the key to progress check.)

Emergency Operations Plan (EOP)

Introduction

The planning process is based on analyzing hazards, vulnerabilities, and risks that would result in a public health emergency.

The Emergency Operations Plan (EOP) is a document prepared and maintained before an incident occurs.

Learning Objectives

At the end of this section, you will be able to describe the inter alia purpose and value of an EOP and the purpose of the Concept of Operations (CONOPS).

Emergency Operations Plan (EOP)

Traditionally, the EOP has been the focus of an operational planning effort. EOPs help to define the scope of preparedness and emergency management activities necessary for the Area of Interest (AOI).

For most countries, an EOP focuses on response and is known as an Emergency Response Plan (ERP). However, EOPs may be more developed and comprehensive which may include plans for prevention, protection, mitigation, response, and recovery.

Purpose of EOP

For most countries, an EOP focuses on response and is known as an Emergency Response Plan (ERP). However, EOPs may be more developed and comprehensive which may include plans for prevention, protection, mitigation, response, and recovery.

The EOP is designed to:

- Clarify cooperating agencies' roles and responsibilities.
- Identify the required resources.
- Provide clear lines of authority.
- Cover periods before, during, and after the emergency.
- Clarify the health authority's role.

EOP Structure

- Plan for multi-hazard rather than develop separate plans for each hazard.
- Identifies the common tasks or functions that key stakeholders perform and assigns roles and responsibilities.
- The goal should be a coordinated and integrated response and should flow from a base plan that outlines the overall emergency organization and its policies.

EOP Format

EOP format includes several key factors, such as organization, progression, consistency, adaptability, compatibility, and inclusivity [Annexure-III(a)].

- **Function-Focused Format:** Traditionally, a function-focused format has three major sections- the base plan, functional annexes and hazard-specific [Annexure-III(b)].
- **Agency/Department-Focused Format:** EOP format addresses each department or agency's tasks in a separate section including lead and support agency sections and hazard-specific procedures for the individual agencies [Annexure-III(c)].

Concept of Operations (CONOPs)

A Concept of Operations (CONOPs) is a core element of EOPs that describes essential components of the emergency response.

This includes the policies, roles, and responsibilities of response management; and how the organization's structural and functional elements work together. The CONOPs is key to detailing how multi-sectoral and transnational coordination will work at the strategic, operational and tactical levels.

Strategic, operational, tactical level responsibilities:

- Steering committee is responsible for strategy.
- National PHEOC has operational responsibility.
- Local level has tactical responsibilities.

Overall response structure:

The Incident Management System is the organizational structure recommended for PHEOCs for public health response coordination and management.

Level of response grading:

Each response should be graded on a scale to demonstrate the level of response resources required. The higher the grade of an incident, the more response, and management resources will be required.

Escalating levels of response:

Triggered by an increasing grade of response, leading to escalating levels or phases of PHEOC activation.

Organization of response components:

Describes the key activities and functions required for a public health response.

Emergency Operations Plan (EOP) in the context of India

Contingency Action Plan (CAP):

A Contingency Action Plan (CAP) for dealing with contingencies arising in the wake of natural disasters has been formulated by the Government of India and it is being periodically updated. It facilitates the launching of relief operations without delay.

The CAP identifies the initiatives required to be taken by various Central Ministries/Departments in the wake of natural calamities, sets down the procedure and determines the focal points in the administrative machinery (National Disaster Management Plan 2019, https://ndma.gov.in/sites/default/files/PDF/ndmp-2019.pdf).

Incident Action Plan (IAP):

A plan with objectives reflecting the overall incident strategy and specific tactical actions and supporting information for an operational period. The plan may be oral or written. When written, the plan may have a number of attachments, including incident objectives, division assignment list, incident radio communication plan, medical plan, traffic plan, safety plan, incident map, etc.

Lesson 4: Progress Check

I. List the purposes of the EOP:

_____

_____

_____

II. The EOP lays out the Concept of Operations (CONOPs), which defines the _____ of the emergency response and defines _____between the different stakeholders in a multi-sectoral environment (WHO, NGO's, other Ministries, etc.).

III. List the levels of responsibilities under the Concept of Operations (CONOPs).

_____

_____

_____

(Please refer to Annexure-I for the key to the progress check.)

Lesson -5

Hazard-Specific Response Plan/Annexes

Introduction

Hazard-specific plans are best built using the all-hazards approach.

Learning Objective

At the end of this section, you will be able to describe the concepts of all-hazards response planning.

Categories of Hazards

Natural Hazards

The widely accepted classification system used by the Disaster Information Management System of DesInventar (NDMP 2019) classifies disasters arising from natural hazards into five major categories and is used globally for monitoring the Sendai targets:

- **Geophysical:** Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Hydro-meteorological factors are important contributors to some of these processes.
- **Hydrological:** Events caused by deviations in the normal water cycle and/or overflow of bodies of water caused by wind set-up.
- **Meteorological:** Events caused by short-lived/small to mesoscale atmospheric processes (in the spectrum from minutes to days.
- **Climatological:** Events caused by long-lived meso to macroscale processes (in the spectrum from intra-seasonal to multidecadal climate variability).
- **Biological:** Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

A brief description of these five major categories of disasters arising from natural factors with the sub-categories is given in Annexure-IV. The below classification is not a watertight one. In real life situations, many disasters are a combination of different types of disasters. In addition, secondary disasters may occur after a disaster has occurred.

Human-Induced Disasters

The NPDM 2009 notes that rise in population, rapid urbanization and industrialization, development within high-risk zones, environmental degradation, and climate change aggravate the vulnerabilities to various kinds of disasters. Due to inadequate disaster preparedness, communities, and animals are at increased risk from many types of human-induced hazards arising from accidents (industrial, road, air, rail, on river or sea, building collapse, fires, mine flooding, urban flooding, oil spills, etc.). Hazards due to CBRN threats and events rank very high among the causes that are human-induced acts. Terrorist activities and secondary incidences arising from international or non-international activities also add to these risks and call for adequate preparedness and planning.

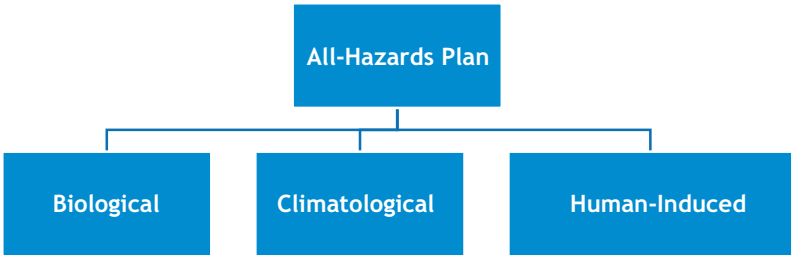
All-Hazards versus Event or Hazard-Specific Response Plans

The EOP includes incident management processes and structures, with clear decision-making processes augmented by hazard-specific response plans/annexes.

Hazard-specific response plans/annexes provide additional details on how to respond specifically to a particular hazard, developed in response to a **comprehensive risk assessment.**

Hazard-Specific Response Plans

The hazard-specific response plans may be stand-alone plans or an annex to the EOP.



Event or hazard-specific plans often provide details about particular required processes and resources. These plans may include the following:

- Threat or occurrence thresholds that trigger alerts and escalating levels of emergency response (event and response grading).
- Technical and scientific capacities that need to be engaged (laboratories, subject matter experts).
- Data collection and processing requirements, material acquisition and deployment processes, and processes of decision-making.
- Risk communication messaging, public warning, community engagement, inter-agency communication processes, and engagement of key partners.
- Cultural sensitivities, legal and ethical issues.

Lesson 5: Progress Check

I. What is included in an all-hazards approach?

_____
_____
_____

II. Plans often provide details about required strategies, resources, and considerations. What might these plans include?

_____
_____
_____

III. Choose whether the following statements are True or False:

a. Event or hazard-specific plans are best built on the all-hazards approach
   - o True
   - o False

b. The all-hazard approach includes incident management processes and structure with clear decision-making processes.
   - o True
   - o False

IV. What are the processes and resources which may be included in event or hazard-specific response and management plans? Tick [ ] all that apply in the options given below:

Technical and scientific capacities that need to be engaged.	
Decision approval processes.	
Key partners to engage.	

(Please refer to Annexure-I for the key to the progress check.)

Incident Management System (IMS)

Introduction

IMS is a standardized approach to the management and coordination of emergency response providing a common hierarchy for response staff during a public health emergency.

Learning Objectives

At the end of this section, you will be able to:

- Describe the Incident Management System (IMS)
- Understand Benefits of IMS and Management Function

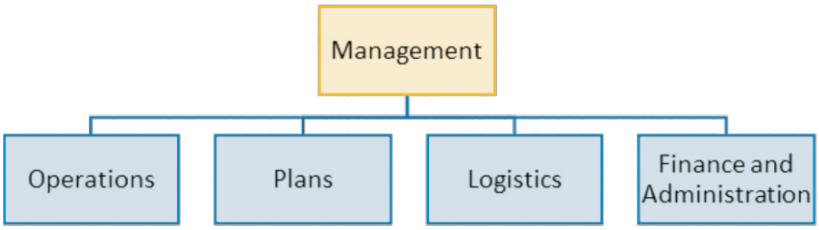
What is an IMS?

An Incident Management System (IMS) is an emergency management structure and set of protocols that provide an approach to guiding government agencies, the private sector, non-governmental organizations, and other sectors to work in a coordinated manner primarily to respond to and mitigate the effects of all types of emergencies. PHEOCs play a vital role in the IMS, as they are the focal points or hubs for the coordination of information and resources to support incident management activities.

The IMS may be used to support other aspects of emergency management, including preparedness and recovery.

IMS Functions

The IMS model has the following core functions:



Benefits of IMS

IMS provides multiple benefits. These include:

- Standardized, scalable, and flexible approach (fulfilling the needs of all incidents, regardless of cause, size, location, or complexity)
- Enhanced cooperation and interoperability through clearly defined roles
- Efficient resource coordination
- Comprehensive all-hazards preparedness
- Measurable, achievable objectives
- Avoids duplication of efforts
- Improves effective communication

Management Function

The Management function is an executive, strategic, operational, command, and coordination activity that:

- Assumes overall responsibility for a response.
- Directs activities based on explicit authority, such as establishing incident objectives, strategies, and priorities.
- Involves decision-making and coordinating risk communication.

Management roles include:

- **Incident Manager:** Responsible for the overall management of the incident.
- **Liaison Officer:** Liaison with assisting agencies , i.e., those providing their tactical resources and cooperating agencies , i.e., those providing external support.
- **Public Information Officer:** Interfaces with the public and media and/or with other agencies with incident-related information requirements.
- **Safety and Security Officer:** Responsible for the safety and security (including the health) of the personnel involved and advising the Incident Manager accordingly.

Operations Function

The Operations function is an activity that establishes tactics and directs operational resources to achieve incident response objectives.

Operations inform decision makers of all information requirements besides coordination and daily response activities.

Plans Function

The Plans function is an activity that:

- Collects, processes, analyzes and evaluates the information to predict the evolution of an emergency.

- Identifies strategies and objectives for addressing an emergency.
- Prepares and disseminates status reports and documents incident response activities.
- Prepares and distributes plans.
- Conducts evaluations of exercises and responses.

Logistics Function

The Logistics function is an activity that deals with the ordering, distribution, maintenance, replacement and return of material and human resources. It includes infrastructural support and provision of services to response staff to meet resource needs.

Finance and Administration Function

The Finance and Administration function in the Incident Management System:

- Tracks expenditures and resources
- Makes payments
- Provides administrative services needed to initiate, operate, and sustain a PHEOC

This function partners with the Logistics function to ensure that funding is available to support response needs.

Lesson 6: Progress Check

Scenario

The PHEOC is activated to respond to a to a COVID-19 upsurge of cases in a metro city. There are 100 confirmed cases from three colonies in slum areas with five deaths. 20 percent of the people who are infected have developed symptoms: high-grade fever, sore throat, running nose, fatigue, nasal congestion, loss of smell or taste, and shortness of breath. Local hospitals and dispensaries are overwhelmed by the number of patients and require assistance from the PHEOC for additional medical supplies and for shifting patients to another facility. The local healthcare facility is requesting Rapid Response Teams from the PHEOC to deploy to the field to assist with contact tracing.

Work within teams or individually to determine which of the activities would be associated with the assigned function.

Activity	Functional Section
Develop an Incident Action Plan	
Coordinate with the alternative healthcare facilities in the impacted region to take the overflow of patients from local hospitals and dispensaries.	
Gather and display information on the location and bed availability of alternative healthcare facilities in the impacted region.	
Identify and convene the Rapid Response Team to deploy to the field	
Arrange transportation for patients from the local hospital to an alternate facility.	
Make travel arrangements (book transportation and lodging) for deploying the Rapid Response Team to the field.	
Obtain and transport the requested medical supplies based on the request from the impacted local health facility.	
Prepare a budget for the response based on the response objectives.	
Track the costs of the response.	

(Please refer to Annexure-I for the key to the progress check.)

Module Summary

Basics of Public Health Emergency and Disaster Management included definitions and description of emergency, disaster, public health emergency management and One Health Approach.

International Frameworks for Public Health Emergency and Disaster Management included the provisions of IHR 2005 in detail and the obligations of WHO and the member states. It described a Public Health Emergency of International Concern and the process of its implementation.

Other international frameworks include Global Health Security Agenda, NAPHS for all, Sustainable Development Goals, Sendai Framework etc.National Frameworks for Public Health Emergency and Disaster Management include the Constitution of India, Disaster Management Act, 2005, National Disaster Management Plan etc. Core capacities implemented in India as per IHR 2005 were discussed.

The WHO Framework for a Public Health Emergency Operations Centre (PHEOC) outlines the key concepts and essential requirements for developing and managing a PHEOC. Technical specifications and SOPs for setting up HEOC were released by MoHFW, Government of India.

An Emergency Operations Centre (EOC) is a physical location for the coordination of information and resources to support incident management activities for any type of incident.

Public Health Emergency Operations Centres (PHEOC) integrate traditional public health services into an existing emergency operations model. It fosters public health preparedness, planning, and capacity building.

The Emergency Operations Plan (EOP) is a document that describes how an agency will manage its responses to emergencies of various types.

The EOP lays out the Concept of Operations (CONOPs), which defines the essential components of the emergency response.

The Incident Management System (IMS) is the organization's structure for managing all hazards and emergencies.

Verification of Objectives

At this time, you should be able to:

- Understand the basic terminology in public health emergency and disaster management.
- Describe the major international and national frameworks in public health emergency and disaster management.
- Describe the purpose of the WHO Framework for a Public Health Emergency Operations Centre (PHEOC) and key concepts of PHEOC.
- Describe the purpose and value of an Emergency Operations Plan (EOP).
- Describe the purpose of the Concept of Operations (CONOPs).
- Describe the concepts of all-hazards response planning.
- Describe Incident Management System (IMS).

Module II: Overview of Public Health Emergency Management (PHEM)

Goal

The goal of this module is to acquaint the participants with the principles, and knowledge to recognize the elements, risk factors, and processes involved in an emergency management programme.

Learning Objectives

After completing this module, participants will be able to:

- Identify the factors that affect the management of public health emergencies.
- Identify the principles of incident management.
- Identify the elements of an emergency management programme.
- Describe the Threat and Hazard Identification and Risk Assessment (THIRA) tool.
- Identify principles of isis and Emergency Risk Communications (CERC).

Outline of the Module

The module will follow the outline given below:

Topic	Time
Module Overview	15 minutes
Lesson 1: Factors Affecting Emergency Management	20 minutes
Lesson 2: Principles of Incident Management	30 minutes
Lesson 3: Elements of Emergency Management Programmes	30 minutes
Lesson 4: Risk assessment-Threat and Hazard Identification and Risk Assessment (THIRA)	15 minutes
Lessons 1-4: Progress Check	10 minutes
Lesson 5: Crisis and Emergency Risk Communications (CERC)	15 minutes
Lessons 5: Progress Check	05 minutes
Module Summary	15 minutes
Total Time	≈ 3 hours

Factors affecting Emergency Management

Introduction

Public health emergencies and their management occur within a certain context. In this lesson, we will explore the factors which might affect the management within an emergency event.

Learning Objective

At the end of this section, you will be able to identify the factors affecting public health emergencies management.

Factors affecting Emergency Management

Each emergency is unique; however, there are a variety of factors are important to consider for all events:

- Type, magnitude, location, and impact of the event.
- Availability of human and material resources to address the event.
- Legal and policy environments and mandates.
- Strengths and limitations of emergency response and management agencies.
- Degrees of resilience in individuals, social systems, and health service agencies.

Principles of Emergency Management

Introduction

This lesson will focus on principles of emergency management and provide an overview of strategic and tactical operations and possible points of risk in relation to emergency management.

Learning Objective

At the end of this section, you will be able to:

- list the emergency management principles;
- explain how applying emergency management principles can assist in the response.

Emergency Management Principles



Figure: Emergency Management Principles
(Source: WHO 2020 https://openwho.org/courses/PHEOC-EN)

Applying the Emergency Management Principles can help avoid some of the common challenges of response.

The principles include:

- An all-hazards approach- i.e. incident management processes and structures, with transparent decision-making processes, supported by hazard-specific response plans developed in response to a comprehensive risk assessment.

- Modular, scalable, or adaptable IMS management structures that can be expanded or contracted to deal with changes in the scope and context of the emergency.
- Support for joint involvement of multiple jurisdictions, sectors, and organizations in making and implementing joint management decisions (unified management). Unified management can be described as a team approach to managing complex, multi-agency, or multi-jurisdictional emergencies that allows all agencies with complementary geographical or functional responsibilities in the emergency response to establish a common set of objectives, strategies, and operations.
- Clear lines of accountability, with all personnel in work units of no greater than seven people reporting to only one supervisor, even if working within a matrix of teams within the PHEOC.
- Clearly defined roles and responsibilities for staff that are consistent with their established competencies and supported by specific training in PHEOC functions and operations.
- Clearly articulated authorities, threat thresholds, and procedures for activation, escalation, and deactivation of emergency operations.
- Clearly articulated policies and procedures for communication between international, national, subnational, and local PHEOCs or event management entities.
- Common terminology, functions, and technology at all levels of the response structure to support interoperability.
- Capacity for integration or involvement with partner and stakeholder agencies, including international partners through joint (unified) management or active liaison.
- Sufficient capacity to manage public communications opportunities, including traditional and social media, in culturally suitable ways to support effective risk communication, social mobilization, and community engagement.

Application of the principles of emergency management can help with:

- Confident decision making
- Reliable and rapid processing of data and information to support planning and decision making
- Rapid deployment of the right resources
- Effective human resource and financial management

Why Distinguish Tactical and Strategic Operations?

Strategic operations involve planning the next actions, and tactical operations involve physically carrying out that plan. Essentially, “strategic is doing the right things - tactical is doing things right.”

Strategy is a game plan which can help to achieve a mission and its objectives, whereas Tactics are the actions to reach a particular point or the desired end.

Management of public health emergencies comprises a range of activities, from the direct response at the local or field level to high-level policy and logistical coordination usually by the government or its authorized international, national, and sub-national agencies.

Engagement of various agencies in public health emergency management shall increase communication and knowledge which includes sharing information, data, resources, and intelligence, that would lead to better outcomes.

These differences in focus distinguish tactical operations from strategic operations to:

- Protect public health and ensure safety.
- Maintain or restore essential services.
- Provide emergency relief.
- Mitigate event-associated risk.

For example, during public health emergencies, routine public health functions are augmented, not replaced, by emergency management activities.

Minimizing points of failure

There are known risk factors in managing emergencies, but these can be minimized through awareness, appropriate planning, and attention to management processes.

Absence of capacity or capability, misuse of resources, and lack of coordination with media and public communications opportunities can all result in ineffective public health outcomes. There are many more management failure points given below which could lead to poor outcomes during a public health emergency:

- Lack of clarity regarding authority and responsibility can result in flawed or delayed decision-making.
- Technical communications failures within the response organization can result in delayed decisions and untimely action, including the inability to produce a common operational picture and shared situational awareness.
- Lack of coordination between partners causes inefficient use of resources, duplication, and/or gaps leading to a less-than-optimal response.
- Absence or poor use of specialized resources or response assets, including insufficiencies of surge staff, can lead to undesirable outcomes.

Elements of an Emergency Management Programme

Introduction

Comprehensive emergency management programs contain common elements. This lesson explores these common elements and their requirements.

Learning Objective

At the end of this section, you will be able to identify the elements of an emergency management program.

Elements of Emergency Management Programme

A comprehensive emergency management program has commonly recognized elements:

1. **Risk assessment** includes hazard identification, vulnerability or threat assessment, and surveillance and monitoring of potential or evolving threats.
2. **Prevention and mitigation** involve measures to prevent identified risks or introduce measures to reduce their impact. It may include disease detection and outbreak prevention and control, vaccination of populations, food and water safety, environmental protection program, community education, and social mobilization.
3. **Preparedness** is the knowledge and capacities of governments, response and recovery agencies, communities, and individuals that enable them to anticipate, respond to, and effectively recover from the effects of a wide range of likely, imminent, or current events.
4. The **response** involves utilizing preparedness resources, undertaking activities to react to an event, and managing the event proactively. Response activities may include the situation assessment, mobilization of resources, enhanced surveillance, contact tracing, and environmental health intervention and monitoring.
5. **Recovery** refers to the restoration of damaged infrastructure, damaged resources, routine surveillance, monitoring activities, community infrastructure, resilience, evaluation of response outcomes, the conduct of an after-action review, and implementation of an action plan to mitigate risks and improve future responses.



Figure: Elements of Emergency Management Programme

The response phase occurs in the immediate aftermath of a public health emergency. During this phase, operations do not function normally. Personal safety and wellbeing in an emergency and the duration of the response phase depend on the level of preparedness.

These capabilities are central to an effective PHEOC, which are created and maintained through the training of selected staff as well as coordination with other relevant sectors.

In many parts of the world, the Incident Management System (IMS) is standard practice and the model on which the PHEOC framework is based.

Risk assessment- Threat and Hazard Identification and Risk Assessment (THIRA)

Introduction

Risk assessment is a process of estimation and characterization of risks. It provides the basis for taking action to manage and reduce the negative consequences of acute public health risks.

Learning Objective

At the end of this lesson, you will be able to describe Risk assessment and THIRA.

Risk Assessment

Risk is the potential for an unwanted outcome resulting from an incident or occurrence, as determined by its likelihood and the associated consequences.

A risk assessment is a systematic process for gathering, assessing, and documenting information about hazards to assign a level of risk. It provides the basis for taking action to manage and reduce the negative consequences of acute public health risks.

Risk assessment is a term used to describe the overall process or method where you:

- Identify hazards and risk factors that have the potential to cause harm (hazard identification).
- Analyze and evaluate the risk associated with that hazard (risk analysis, and risk evaluation).
- Determine appropriate ways to eliminate the hazard or control the risk when the hazard cannot be eliminated (risk control).

Threat and Hazard Identification and Risk Assessment (THIRA)

THIRA is a three-step risk assessment process that helps communities understand their risks and what they need to do to address those risks by answering the following questions:

- What threats and hazards can affect our community?
- If they occurred, what impacts would those threats and hazards have on our community?
- Based on those impacts, what capabilities should our community have?

THIRA can be conducted at the national, regional, or community level. The outputs from the Community THIRA lay the foundation for determining a community's capability gaps as part of the Stakeholder Preparedness Review (SPR).

For further reading, visit: https://www.fema.gov/emergency-managers/risk-management/risk-capability-assessment#spr

In a similar line, Hazard Risk and Vulnerability Analysis (HRVA) is an all-hazards risk assessment that helps guide decisions to mitigate, prepare, respond, and recover from hazards that pose a risk to the region. The results from the HRVA or THIRA are the cornerstones of the planning process and will be used to develop planning priorities and help make risk-based choices to address vulnerabilities, mitigate hazards, and prepare for response and recovery from disasters.



Figure: Communities use the THIRA/SPR to answer five key questions.



Figure: Three steps in the THIRA process.

Steps	Description
Identify Threats and Hazards of Concern	Based on a combination of experience, forecasting, subject matter expertise, and other available resources, develop a list of threats and hazards that could affect the community. When deciding what threats and hazards to include in the THIRA, communities consider only those that challenge the community's ability to deliver at least one core capability more than any other threat or hazard; the THIRA is not intended to include fewer challenging threats and hazards.
Give Threats and Hazards Context	Describe the threats and hazards identified in Step 1, showing how they may affect the community and create challenges in performing the core capabilities. Identify the impacts a threat or hazard may have on a community.
Establish Capability Targets	Using the impacts described in Step 2, determine the level of capability that the community plans to achieve overtime to manage the threats and hazards it faces. Using standardized language, create capability targets for each of the core capabilities based on this desired level of capability by identifying impacts, objectives, and timeframe metrics.

For further reading, visit: https://www.fema.gov/sites/default/files/2020-04/CPG201Final20180525.pdf

Lessons 1-4: Progress Check

I. There are different activities given below. Please work within team or as an individual to identify the elements of the emergency management programme which are associated with a given activity.

Activity	Element Section
To prevent identified risks or introduce measures to reduce their impact	
Situation assessment, mobilization of resources, enhanced surveillance, contact tracing, and environmental health intervention and monitoring	
Restoration of community infrastructure and resilience	
Surveillance and monitoring of potential or evolving threats	
Disease detection and outbreak prevention and control	
Restoration of damaged infrastructure and resources, restoration of routine surveillance and monitoring activities	
Vaccinations of populations	
Undertaking activities to react to an event proactively	
Restoration of routine surveillance and monitoring activities	
Vulnerability or threat assessment	

II. In your opinion, what are the three most important common factors in an emergency event?

_____

III. List four of the essential pieces included within CONOPS/ EOP.

_____

IV. How can recognized risk factors be minimized in public health emergencies?

_____

V. What are the elements of emergency management?

_____

VI. Responses to emergencies require processes and structures that support which activities?

_____

VII. The Threat and Hazard Identification and Risk Assessment (THIRA) is

- Three-step risk assessment process
- Four-step hazard assessment process
- Two-step hazard assessment process
- Five-step hazard assessment process

(Please refer to Annexure-I for the key to progress check.)

Lesson -5

Crisis and Emergency Risk Communications (CERC)

Introduction

Communities may be quickly attacked by emergencies. We are aware of a number of calamities that might at any time endanger any community, including earthquakes and cyclone, pandemic etc. When an emergency initially arises, responding personnel frequently have no other resource to provide the impacted populations but information. We can influence how our community responds to and recovers from these potentially catastrophic situations via good communication.

Learning Objectives

After this lesson, participants will be able to state the Crisis and Emergency Risk Communications (CERC), principles of CERC, terms associated with CERC, phases of a Crisis and the Communication Rhythm, role of CERC.

Why is CERC important? Even when a crisis is predicted, it might take some time to launch a thorough response. Resources must be provided, the situation must be appraised, and monitored for emerging or secondary threats and persons and materials must get past any logistical or safety hurdles to reach the impacted region. However, individuals who are impacted and at imminent risk are prepared to act right away and need information on the situation and immediate safety measures. Under extremely difficult time restrictions, the CERC framework and its principles can assist in giving the public the knowledge they need to make the best options and accept the imperfection of choice. What we say, when we say it, and how we say it may have a genuine and discernible impact on the wellness of our communities.

The Six Principles of CERC

Fully integrating CERC ensures that scarce resources are well handled and can contribute the most to each stage of an emergency response. The six principles of effective emergency and risk communications are as follows:

i. Be First: Crises are time-sensitive. Communicating information quickly is crucial. For members of the public, the first source of information often becomes the preferred source.

ii. Be Right: Accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps.

iii. Be Credible: Honesty and truthfulness should not be compromised during crises.

iv. Express Empathy: Crises create harm, and the suffering should be acknowledged in words. Addressing what people are feeling, and the challenges they face, builds trust and rapport.

v. Promote Action: Giving people meaningful things to do calms anxiety, helps restore order, and promotes some sense of control.

vi. Show Respect: Respectful communication is particularly important when people feel vulnerable. Respectful communication promotes cooperation and rapport.

Terms Associated with CERC

Crisis Communication

The term "crisis communication" describes the process of providing facts to the public about an unexpected emergency, beyond an organization's control, that involves the organization and requires an immediate response. The crisis may cause harm to an organization's reputation or viability.

Issues Management Communication

The community is informed through risk communication on the precise nature and magnitude (strong or weak) of an outcome resulting from exposure or behaviour. Risk communication often involves talking about a bad result and how likely it is that it will happen. Risk communication can be used to influence a person's decision on a habit, such as smoking, receiving a vaccination, or receiving medical care.

Crisis and Emergency Risk Communication (CERC)

The CERC embraces the urgency of crisis communication and empowers decision-making. Decisions on risks and actions must be made quickly during an emergency. The outcome of the decision might not be guaranteed and it might be final. It could be necessary to make the choice with inaccurate or insufficient information.

The Phases of a Crisis and the Communication Rhythm

Every crisis, tragedy, or emergency goes through several stages. These stages correspond to communication efforts and priorities, and communicators must adjust and react to each phase. Communicators can anticipate the information demands of the media, governmental organisations, commercial and public organisations, and the people in an affected region by segmenting the crisis into these phases: preparation, initial, maintenance, and recovery. There are particular sorts of information that must be developed for each of these phases.

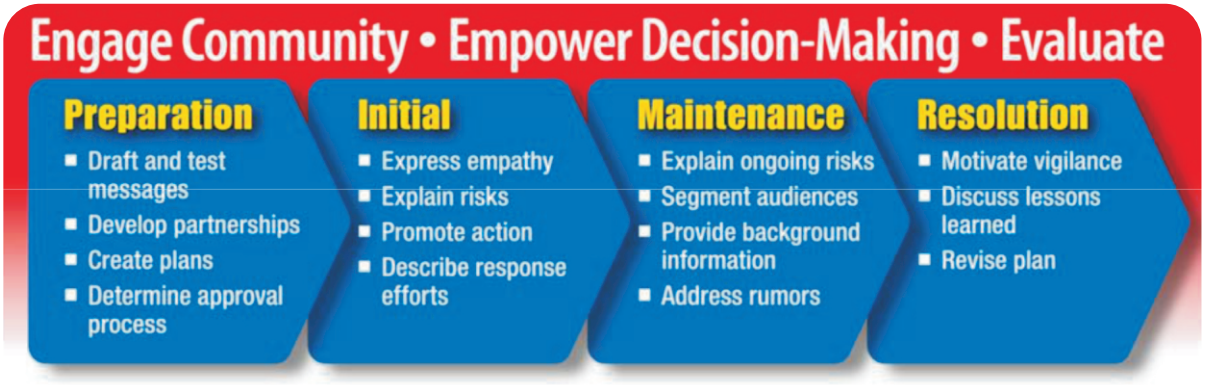


Figure: Crisis and Emergency Risk Communication (CERC) Rhythm
(Source: https://emergency.cdc.gov/cerc/)

The Role of CERC

The right message from the right person at the right time can save lives. The aim of CERC is to arm people with the knowledge they require to choose life-saving actions in dire circumstances. The psychological processes of those who are impacted by, responding to, or witnessing a crisis are central to CERC's design.

To assist people in coping and starting to reconstruct, CERC principles are essential. In settings that might otherwise be chaotic, effective communication aids in bringing a feeling of order and comprehension.

Organizations may accomplish their goals, uphold the public's trust, manage their limited resources, and most importantly, avoid and lessen sicknesses and accidents, with the help of effective communication. Be first, be accurate, be believable, demonstrate empathy, encourage action, and treat people with respect at every stage of an effective response.

Lesson 5: Progress Check

1. What are the principles of CERC?

_____
_____
_____

2. Mentioned Phases of a Crisis and the Communication Rhythm?

_____
_____
_____

Module Summary

Each emergency is unique, however, there are a variety of factors that are common for all events and should be considered in planning and operations.

The principles of emergency management includes:

- All hazard approaches
- Modular and scalable IMS
- Policies and procedures
- Joint work with partners
- Common terminology
- Accountability and manageable size
- Common structures, functions and technology
- Clearly defined roles and responsibilities
- Communication and engagement with community

Elements of Emergency Management are:

1. Risk Assessment
2. Prevention and Mitigation
3. Preparedness
4. Response
5. Recovery

Response to public health emergencies requires management processes and structures that support the following:

- Confident and competent decision-making and operational execution.
- Reliable and rapid processing of data and information into action plans.
- Rapid deployment of resources.
- Effective human and financial resourcing and accountability.

THIRA is a three-step risk assessment process that helps communities understand their risks and what they need to do to address those risks

Verification of Objectives

At this time, you should be able to identify the factors that affect the management of public health emergencies, the principles of emergency management, elements of an emergency management programme and the Threat and Hazard Identification and Risk Assessment.

Fully integrating CERC ensures that scarce resources are well handled and can contribute the most to eachstage of an emergency response.

Module III: Public Health Emergency Operations Centre (PHEOC)- Infrastructure and Information Technology

Goal

The goal of the Infrastructure and Information Technology module is to review key PHEOC infrastructure and information technology concepts.

Learning Objectives

After completing this module, participants will be able to:

- Identify different types of PHEOC facilities and how to secure them.
- Determine security measures for PHEOC hardware and software.
- Manage information and shared technology systems.

Outline of the Module

The module will follow the outline given below:

Topic	Time
Module Overview	10 minutes
Lesson 1: PHEOC Facilities: Security, Services, Furniture, and Maintenance	30 minutes
Lesson 2: PHEOC Information Technology: Hardware, Software Management Security and Infrastructure	20 minutes
Lesson 3: Managing Information and Technology Sharing Systems	20 minutes
Lessons 1-3: Progress Check	20 minutes
Lesson 4: COVID-19 Case Study	65 minutes
Module Summary	15 minutes
Total Time	≈ 3 hours

PHEOC Facilities: Security, Services, Furniture, and Maintenance

Introduction

Previously, you learned about the Incident Management System (IMS) and the different functions within it.

In this lesson, the focus is on key concepts for PHEOC infrastructure and information technology. Topics to be reviewed include:

- Types of facilities and how to secure them.
- Security measures for hardware and software.
- Managing information and shared technology in a PHEOC.

Learning Objective

At the end of this section, you will be able to identify different types of PHEOC facilities and how to secure them.

Two Main Facility Types

There are two main types of PHEOC facilities:

1. **Dedicated Facilities:** Using dedicated space for a PHEOC is the most ideal arrangement.

These facilities are common at regional, provincial, and national government levels.

Dedicated facilities need to have an alternate location that can be activated in case the primary PHEOC becomes unusable or unsuitable.

These backup locations should be fully functional within minutes in case there are technological or other failures. Depending on the magnitude and impact of the anticipated emergency, it may be possible to use an alternate site that does not fully satisfy all the requirements of a PHEOC. Therefore, this alternate site may require equipment and personnel from the primary site if the need arises.

2. **Multi-purpose Facilities:** The most common PHEOC facility is **dual** or **multi-purpose**, that means, the space is routinely used for activities that are not related to emergency preparedness and response, for example, capacity building training. The space is converted into a PHEOC when required.

A dual or multi-purpose PHEOC is beneficial because the space is most likely in a central location from where most PHEOC surge staff is drawn. The Information and Communications Technology (ICT) equipment is also more likely to be maintained because it is routinely used.

PHEOC Facility Requirements

A PHEOC Facility should:

- Be large enough to accommodate all preparedness and response functions.
- Be close to the designated lead and partner agencies.
- Allow adequate space for staff and ample parking for private vehicles.
- Contain open common areas, relatively quiet working spaces, and closed workspaces suitable for meetings, conference calls, and small group activities.
- Provide adequate sanitary facilities, rest areas, and food amenities for people working for long periods.
- Be physically and environmentally secure, accessible, and capable of sustaining operations in the event of a threat or disaster.

In the situation where it is difficult to get space for establishing permanent or temporary PHEOC, the virtual PHEOC using the IT network can be used.

Securing a PHEOC Facility

To secure the facility, resources, and personnel from routine hazards and possible break-ins, on-site provisions such as perimeter protection and access/entry controls are recommended.

These may entail measures such as closed-circuit television surveillance systems, perimeter protection, and/or access/entry controls. Maintaining the security of the PHEOC data and the systems that process and store it, requires the routine use of firewalls; encryption; password protection; up-to-date anti-virus software; and redundancy of data (and, to some extent, redundancy of hardware) to support rapid service recovery in the event of a security breach.

A risk assessment of the facility and surrounding areas should be completed to identify the most probable hazards to the facility.

Alternatives to the traditional PHEOC?

- Virtual PHEOC platforms
  - o Relevant during the time of COVID-19
  - o Supports Operational flexibility
  - o Social distancing

Disadvantages to the virtual environment?

- Requires networked computers and telecommunication devices.
- Stable internet connection to access the network is one of the most challenging factors.
- Absence of face-to-face interpersonal interaction may limit the efficiency of virtual PHEOC in comparison to physical PHEOC.

PHEOC Information Technology: IT Hardware, Software Management, Security, and Infrastructure

Introduction

Protecting a PHEOC includes both physical security and defending it from data breaches. This lesson explores what it takes to secure PHEOC data and systems.

Learning Objective

At the end of this section, you will be able to determine security measures for PHEOC hardware and software.

PHEOC Set-up

A PHEOC processes large amounts of sensitive information on open displays, so it is important that only validated personnel are allowed into the PHEOC location. Since it is a high-pressure work environment, media, and photo opportunities should be held off-site or staged when it is convenient for PHEOC staff and sensitive information is not visible. Securing data and systems is critical.

Computer networks should be protected from external threats, including network attacks, power surges, and outages.

To prevent a security breach, firewalls, encryption, password protection, up-to-date anti-virus software and redundancy of data and hardware should be used to support rapid service recovery.

PHEOC Technology Solutions

PHEOC technology solutions include:

- Selection of telecommunication systems and networks based on available connections for workstation computers, mobile devices, and hardwired telephones.
- Ability to conduct teleconferences (with video conferencing if feasible).
- Large screen video displays that support visual images to show the status and contextual aspects of an event.
- Media monitoring capability (e.g., television, radio, etc.)
- Video recording and playback capability.
- All the usual office equipment and supplies such as computers, printers, copiers, document scanners, fax machines, application hosting, data storage servers, and forms are to be designed to provide paper-based backups in case of technology failures.

Model Layout of PHEOC

The Ministry of Health & Family Welfare, Government of India issued a D.O.No. Z.28015/190/2021- DMCell dated 24 September 2021 regarding the new initiative 'Prime Minister Atmanirbhar Swasth Bharat Yojana' (PMASBY) to set up state-of-the-art Health Emergency Operations Centres (HEOC's) in the states vulnerable to disasters under which two layouts were recommended (Annexure-III).

As per GoI guidelines, an optimal space of 250 sq. mtr. is required for setting up of State HEOC.

Layout 1

Modern emergency operations centre design includes four general configurations. The number of seats in the operations room is a function of the number of staff required to do the job on a continuous basis. Regardless of the chosen furniture layout, staff must see shared large screens and speak to the people that they need to interact with throughout the event.

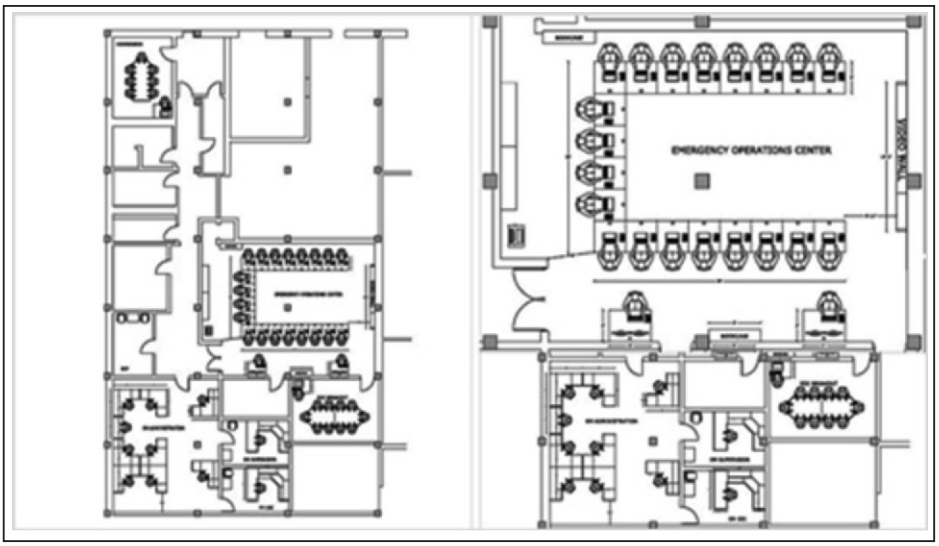


Figure: Layout 1

Layout 2

This arrangement emphasizes working groups or teams of different specialties under the leadership of one or more staff facing the groups. If including a video wall at the front of the room, the leadership would be placed at the head of each cluster, or at the back of the room in order to see the large displays.

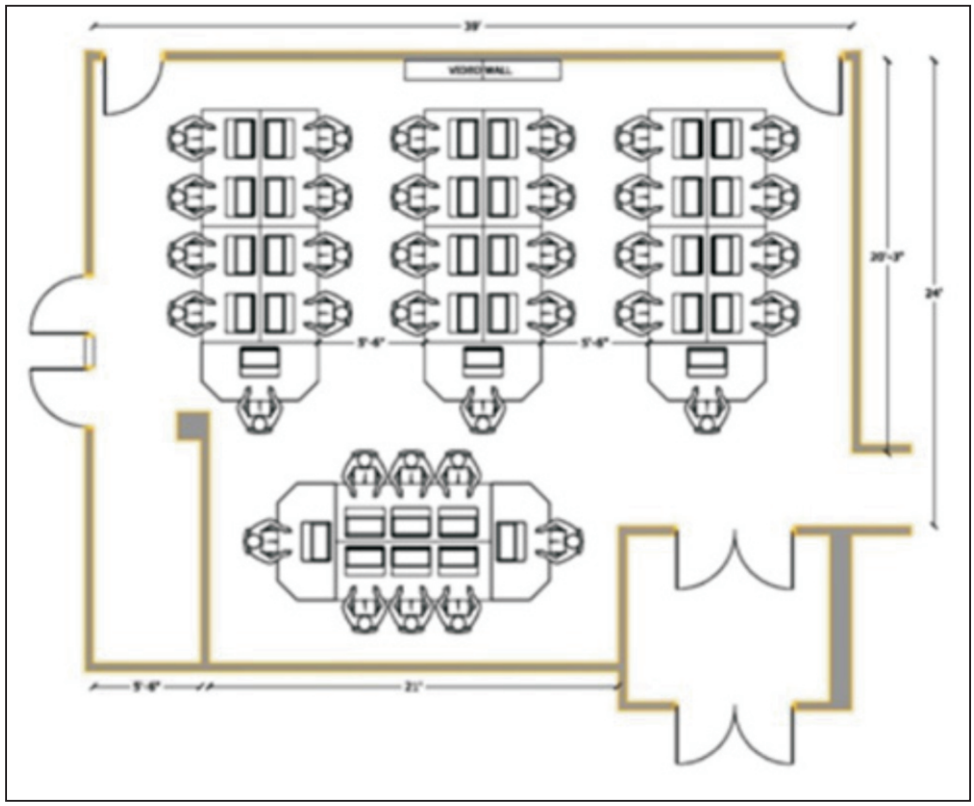


Figure: Layout 2

Lesson -3

Managing Information and Technology Sharing Systems

Introduction

The last topic of this module concerns managing information and technology sharing systems. System integration is the process of combining several systems into an overall system, so that information can be freely shared.

Learning Objective

At the end of this section, you will be able to manage information and shared technology systems.

PHEOC Information System

The goal of an effective PHEOC information system is to increase the availability, accessibility, quality, timeliness, and usefulness of emergency operations information for public health action.

It should support all functions and have the capacity to:

- Ensure data security, privacy, and confidentiality.
- Make sure system operations are uninterrupted.
- Adopt data and information technology standards that allow PHEOC information systems to integrate seamlessly with other relevant national health information systems. This includes common data-sharing platforms; the development and use of a common communications plan; and interoperability of communications equipment, procedures, and systems.

PHEOC Information System: Six Components

PHEOC information system includes six components:

1. **Resources:** Leadership, policies, financial, human, and infrastructure.
2. **Indicators:** Morbidity, mortality, environmental risks, health resource availability, and readiness, and vaccine coverage.
3. **Data sources:** Common operational datasets, health facilities data, reports from subnational health management teams and coordinating meetings, health workforce, human and animal surveillance, laboratories, data on stockpiles of medical countermeasures, financial data, etc.

4. **Data management:** Collecting, storing, processing, compiling, analyzing, and visualizing data, presenting geospatial information, and completing quality assurance checks.
5. **Platform:** Developing a collaborative platform for information sharing.
6. **Information products:** Situation reports, case summary statistics, media/communication reports, financial reports, health workforce distribution reports, 3Ws (who does what, where, and when), etc.

Data and Standards

Three general types of data must be routinely captured, processed, and displayed in a PHEOC. There are varying levels of detail that should be tailored to the needs of the event and the responsible jurisdiction in these general data types.

- **Event Specific Data:** What, how many, where, who, how quickly, and status (e.g. clinical and epidemiological data).
- **Event Management Data:** Information that impacts the functions of the PHEOC. It includes data on human and material resources on hand, the status of interventions, partner activities, resource deployments, expenditures, and progress on objectives.
- **Context Data:** Geographic information mapping, population distribution, transportation, locations of fixed and temporary facilities, availability of clean water, climate, weather, and any other significant contextual information.

There is a well-recognized need for a standardized system for reporting healthcare information within a country's public health system and between other systems.

This applies particularly to PHEOCs and other EOCs involved in PHEM.

Information flow chart

The D.O. No. Z.28015/190/2021- DMCell dated 24 September 2021by the MoHFW also recommended a flow of information in the HEOCs (Annexure-II).

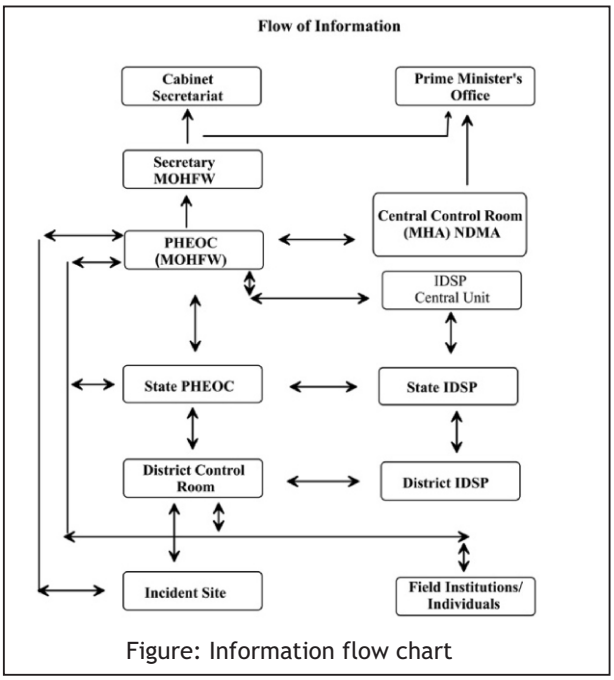


Figure: Information flow chart

Integrated Disease Surveillance Programme (IDSP)

Integrated Disease Surveillance Programme (IDSP) was launched with World Bank assistance in November 2004 to detect and respond to disease outbreaks quickly.

The main objective of Integrated Disease Surveillance Program (IDSP) are to

- To detect the early warning signals of impending outbreaks of selected communicable diseases
- Initiation of timely and effective public health actions
- Creation of trained cadre of responders at the District, State & National levels (Rapid Response Teams)
- Reducing mortality and morbidity due to communicable disease outbreaks
- Three levels of data collection - Syndromic (S form) by ANMs, Presumptive (P form) by doctors at health facilities and Laboratory (L form) by laboratories

Integrated Health Information Platform (IHIP)

The Integrated Health Information Platform (IHIP) is a web-enabled near-real-time electronic information system that is embedded with all applicable Government of India's e-Governance standards, Information Technology (IT), data & meta data standards to provide state-of-the-art single operating picture with geospatial information for managing disease outbreaks and related resources.

Key features of Integrated Health Information Platform (IHIP)

- Real time data reporting (along through mobile application); accessible at all levels (from villages, states and central level)
- Advanced data modelling & analytical tools
- GIS enabled Graphical representation of data into integrated dashboard
- Role & hierarchy-based feedback & alert mechanisms
- Geo-tagging of reporting health facilities
- Scope for data integration with other health programs

For further reading, visit https://www.idsp.mohfw.gov.in/index4.php?lang=1&level=0&linkid=454&lid=3977

Lesson 1-3: Progress Check

I. There are two main types of PHEOC facilities: _____ and _____.

II. Telecommunication _____ and _____ are selected based on available connections for workstation computers, mobile devices, and hardwired telephones.

III. Computer networks should be protected from _____ threats, including network attacks, power surges, and outages.

(Please refer to Annexure-I for the key to progress check.)

COVID-19 Case Study

Introduction

Within this lesson, you will have a chance to put into action the information you have learned so far.

Please review the data presented within the following section and work within teams or individually to decide how to best manage this event.

You need to determine the following:

- What type of data do you anticipate you will need to capture, process, and display in your PHEOC for each phase of the event?
- How will you secure the data?
- What data backup measures will you use?
- What type of information and communication technology infrastructure do you need?

Known Data

Earlier we have discussed a scenario about COVID-19 in Module I, Lesson-4 under the section of knowledge check. The information extracted from that scenario is given below:

- A total of 100 COVID-19 cases have been reported so far.
- 20 per cent of the people who are infected have developed symptoms: high-grade fever, sore throat, running nose, fatigue, nasal congestion, loss of smell or taste, and shortness of breath.
- 5 deaths have been reported.

Task I. Determine the data to be captured, processed and displayed.

Possible Answers:

_____

_____

_____

Task II. How to secure the data?

Possible Answers:

_____

_____

_____

Task III. Determine the information and communication technology infrastructure.

Possible Answers:

_____

_____

_____

(Please refer to Annexure-I for the key to progress check.)

Module Summary

In the PHEOC: Infrastructure and Information Technology module, you learned about two main types of PHEOC facilities: dedicated and multi-purpose.

- A dedicated building or space which is only used as the PHEOC is the most ideal.
- Multi-purpose facilities are routinely used for activities that are not related to emergency preparedness and response, such as training, and then converted to a PHEOC when required.

All PHEOC facilities must be physically and environmentally secure. Risk assessment of the facility and surrounding areas should be completed to assess security threats.

To prevent a security breach, firewalls, encryption, password protection, up-to-date anti-virus software, and redundancy of data and hardware should be used to support rapid service recovery. It is critical to ensure data security, privacy, and confidentiality.

Recommended information and communications technology infrastructure include teleconferencing, media monitoring, video recording, playback capabilities, and standard office equipment.

Verification of objectives

At this time, you should be able to:

- Identify different types of PHEOC facilities and how to secure them.
- Determine security measures for PHEOC hardware and software.
- Manage information and shared technology systems.

Module IV: Overview of Incident Management System (IMS)

Goal

The goal of this module is to provide the participants with the knowledge to explain the basic concepts of the IMS organizational model.

Learning Objectives

After completing this module, participants will be able to identify the purpose of IMS and describe the core functions of IMS and the concept of Management by Objectives (MBO).

Outline of the Module

The module will follow the outline given below:

Topic	Time
Module Overview	5 minutes
Lesson 1: Purpose and Role of IMS	75 minutes
Lesson 1: Progress Check	10 minutes
Lesson 2: The Core Functions of IMS	70 minutes
Lesson 2: Progress Check	10 minutes
Lesson 3: Management by Objectives (MBOs)	30 minutes
Lesson 3: Progress Check	10 minutes
Module Summary	10 minutes
Total Time	≈ 4 hours

Purpose and Role of Incident Management System (IMS)

Introduction

Incident Management System (IMS) is a standard organizational model that can be applied to all hazards and emergencies. It can be applied to all levels of emergency management responsibilities within a particular jurisdiction: from national government to front-line emergency response services.

Learning Objective

At the end of this section, you will be able to identify the purpose and role of IMS.

Incident Management System (IMS)

- Provides a fully scalable and adaptable approach to providing public health assistance.
- Enables a coordinated response among various jurisdictions and agencies.
- Establishes a common process for planning and management of resources by objectives.
- Represents best practices and has become the standard for public health emergency management.

IMS Organization

IMS organization differs from day-to-day organogram structures and positions by:

- using unique IMS functional roles in a response organogram.
- assigning personnel based on expertise, not status or position.

Modular Organization

An incident management structure is based on:

- size, type, and complexity of the incident.
- specific to the public health needs of the community.
- planning and objectives.

IMS Management

IMS span of control is key to effective and efficient incident management. This control for any supervisor should be between 3 and 7 subordinates. However, it would be optimal if it does not exceed 5 subordinates.

Resource Management

Resource Management encompasses many functions, including:

- Categorizing:
  - Personnel
  - Equipment
  - Supplies
  - Facilities
- Ordering and Dispatching
- Tracking
- Recovering
- Reimbursing other ministries/agencies, if needed

Accountability

What accountability lies within IMS?

- Check-In
  - All responders must report in to receive an assignment.
- Span of Control
  - Supervisors control the assigned staff and manage all resources under their supervision.
- Resource Tracking
  - Supervisors must record and report resource status changes as they occur.
- Dispatch/Deployment
  - The personnel and logistic (equipment) section should respond only when requested or when dispatched by an appropriate authority.

Initial Briefings

Briefings should include:

- Situation assessment
- Job responsibilities
- Operational periods
- Required safety procedures
- Description of response organogram
- Location of work area
- Instructions for obtaining resources
- Identification of break areas

Benefits of using an IMS

- Effective coordination of response
- Achievement of response objectives
- Efficient use of resources
- The efficiency of timely response

Situations for IMS usage

- Human-caused hazards
- Planned events
- Disease outbreaks (human, animal, and environmental health).
- Natural hazards

Also, accept specific examples that fit the categories above (e.g., a tsunami, cyclone, earthquake, landslide, cloud outburst, and floods).

Lesson-1: Progress Check

Take few moments to answer the questions below.

I. What is IMS?

Choose whether the following statements are True or False.

IMS represents the standard for public health emergency management.	True	False
IMS establishes unique processes for planning and management of resources by objectives.	True	False

II. What are some of the benefits of IMS?

_____

_____

_____

III. Provide an example of when IMS is used.

_____

_____

_____

(Please refer to Annexure-I for the key to progress check.)

The Core Functions of IMS

Introduction

Common core functions are created within the IMS. This lesson will introduce you to these core functions.

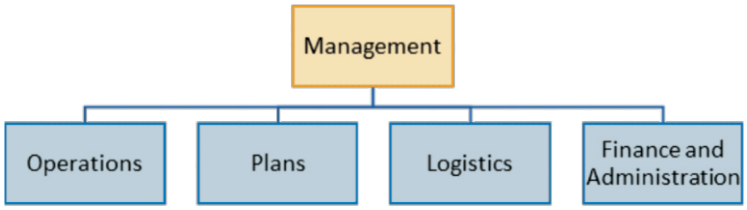
Learning Objective

At the end of this section, you will be able to describe the functions of IMS.

Structural view of IMS

Five functional areas work together to provide core coordination functions.

- The management function has direct responsibility for all functions.
- The hierarchy suggests a management structure that is critical to follow for optimal results in emergency management.



IMS Primary Function Descriptions

- Management: Incident Manager and Deputy Incident Manager
- Operation: Enables response activities
- Plans: Analysis, planning, training, and evaluation function
- Logistics: Acquisition and deployment of resources function
- Finance and Administration: Expenditure tracking, payments, and administrative services function

IMS Core Function: Management

Incident Manager:

- Assumes overall responsibility for managing the response.

- Responsible for all IMS functions. Until an IMS structure is in place the Incident Manager is directly responsible for conducting all IMS functions.
- Responsible for providing overall direction for the response.
- Establishes incident priorities, approves incident objectives, and the Incident Action Plan.
- Communicates with the Ministry of Health and other high-level officials at the National and State level.
- Maintains overall situational awareness of the response.

Deputy Incident Manager:

- Performs specific tasks as requested by the Incident Manager.
- Steps in for the Incident Manager when he or she is otherwise not available.
- Ensures all relevant positions needed to support the response are filled.
- Maintains overall situational awareness of the response.

IMS Core Function: Operations

Operations enable response activities, which include the following:

- Coordinates the daily utilization of resources to support public health requests and inquiries.
- Ensures the public health emergency management program is operationally ready to support any public health response.
- Manages and coordinates activities in a PHEOC.
- Provides technical expertise.
- Informs, coordinates, and enables daily response activities.
- Informs decision-makers of all information requirements.
- Tracks and coordinates internal and external requests for information or action.

IMS Core Function: Plans

Plans are responsible for analysis, planning, training, and evaluation.

Duties include:

- Collect, evaluate, and display response information.
- Develop and manage the public health emergency management training and exercise programs.
- Develop plans for demobilization.
- Maintain and update response plans.
- Conduct evaluations of exercises and responses.
- Prepare and maintain documentation which include:
  - Archives/Record Session.

- Enter dates using a consistent format.
- Reporting.
- Use of a consistent electronic or paper filing system.
- Response situational reports.
- Track resources.

IMS Core Function: Logistics

Logistics is responsible for the acquisition and deployment of resources, as well as resource management considerations.

These responsibilities include:

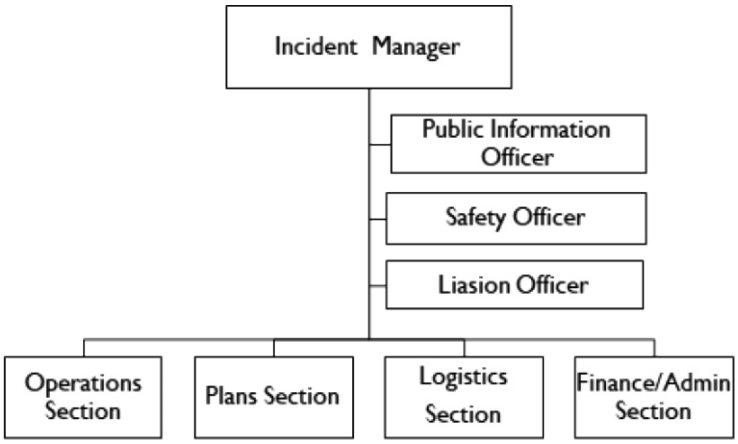
- Anticipate resource needs.
- Establishment of resource needs.
- Resource ordering.
- Track resources ordered.
- Provide resources and services.
- Provide communication equipment.
- Provide or arrange transportation services.
- Maintain incident facilities.
- Order, obtain, maintain, and account for essential personnel, equipment, and supplies.
- Resource utilization and evaluation.
- Resource demobilization.

IMS Core Function: Finance and Administration

The finance and administration function is responsible for expenditure tracking, payments, and administrative services, including:

- Accounts for expenditures, claims, and compensation.
- Contract negotiation and monitoring
- Timekeeping
- Cost analysis
- Documentation for reimbursement, if needed

Expanded Incident Management System



The Public Information Officer (PIO):

- Advises the Incident Manager on information dissemination and media relations.
- Obtains information across IMS sections and provides information and messaging to the public.
- Interacts with a variety of audiences and media fraternity.
- Develops communication products.

The Incident Manager approves information the PIO releases.

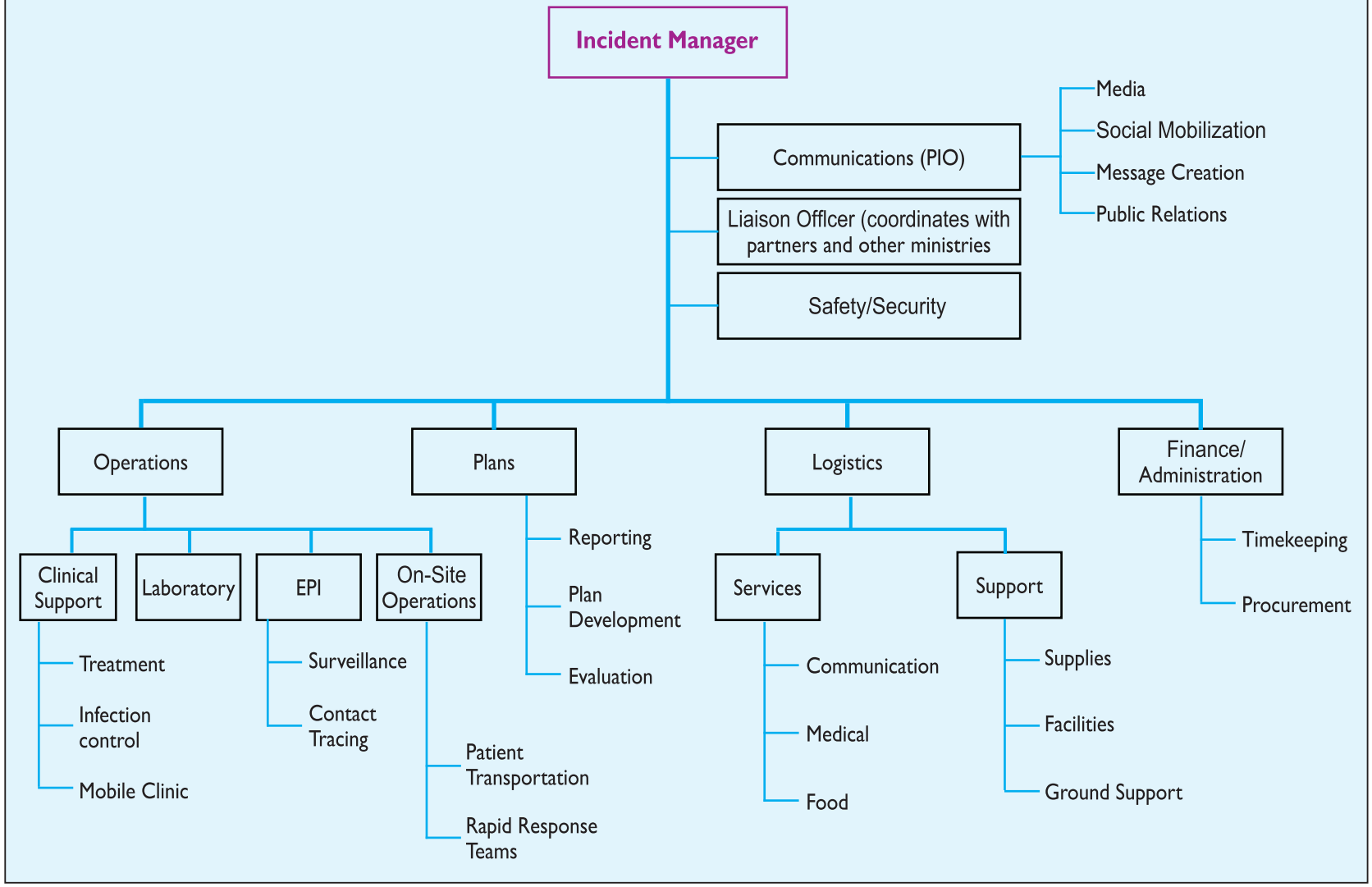
The Liaison Officer:

- Coordinates timely information exchange between internal and external stakeholders and partners.
- Assists the Incident Manager by serving as a point of contact for representatives from other ministries/agencies.

The Safety/Security Officer:

- Monitors the health, welfare, and safety of all responders.
- Provides safety and security briefings to response teams.
- Gives counselling support and guidance on psychological and emotional challenges that staff may face during response activities.
- Advises the Incident Manager on issues regarding safety.

Example of a Fully Expanded Incident Management Structure for a Specific Response under PHEOC



Lesson 2: Progress Check

Take five minutes to complete the questions below. Your Facilitator will review the answers when the class has completed the Progress Check.

I. IMS Primary Function Descriptions: Place the letter of the description in column B next to its IMS primary function in Column A.

A	B
Management	a. Acquisition and deployment of resources function
Operations	b. Analysis, planning, training, and evaluation function
Plans	c. Expenditure tracking, payments, and administrative services function.
Logistics	d. Incident Manager and Deputy Incident Manager
Finance and Administration	e. Enables response activities

II. IMS Benefits: Which function do all the other core IMS functions report to?

_____

_____

(Please refer to Annexure-I for the key to progress check.)

Management by Objectives (MBOs)

Introduction

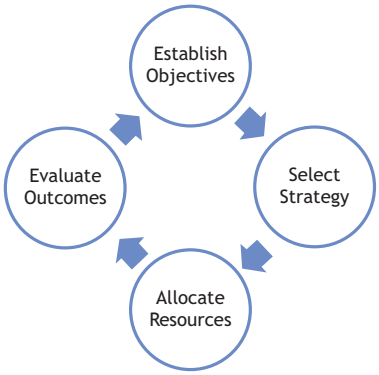
Transitioning from reactive response to proactive situation management and resolution requires Management By Objectives (MBOs) to achieve objectives within limited time-frames.

Learning Objective

At the end of this section, you will be able to describe the concept of Management By Objectives.

Proactive Situation Management

I. Establish Specific, Measurable, Achievable, Realistic, and Timely (SMART) objectives.
II. Evaluate options to achieve the objectives and select a strategy.
III. Identify tactics (activities) appropriate to the chosen strategy and allocate resources.
IV. Monitor and evaluate outcomes of the intervention to re-initiate this cycle, identify gaps and constraints, or achieve the resolution.



Please note that the Incident Manager is responsible for determining the objectives of the response, with input from subject matter experts.

Example of SMART Objectives

- To develop and deliver messages for prevention and control of dengue to the public within 5 days.
- To convene and deploy a Rapid Response Team to the field to investigate reported cases of COVID-19 within 48 hours.

Incident Action Plans (IAP)

Incident Action Plans (IAP) are written plans that outline the objectives related to the strategy for managing an incident.

An IAP includes the identification of operational resources, assignments, attachments that provide direction, and important information for incident management during an operational period.

Lesson 3: Progress Check

Take a few moments to answer the questions below.

I. Transitioning from reactive response to proactive situation management and resolution requires _____ to achieve objectives within limited time-frames. (Select the correct answer from choices given below to fill in the blank)

- a linear approach
- management by objectives
- lack of planning
- nothing more than is required in a reactive response

II. Select the appropriate option which is in the order of the four cyclically applied steps of the Proactive Situation Management model.

a. Establish Objectives, Select strategy, Allocate resources, and Evaluate outcomes
b. Select strategy, Establish Objectives, Allocate resources, and Evaluate outcomes
c. Allocate resources, Establish Objectives, Select strategy, and Evaluate outcomes
d. Evaluate outcomes, Establish Objectives, Select strategy, and Allocate resources

(Please refer to Annexure-I for the key to progress check.)

Module Summary

IMS is a standard organizational model that can be applied to all hazards and emergencies. IMS includes five core functions.

- Management has direct responsibility for overall incident management.
- Operations enable response activities.
- Plans are responsible for situational analysis, planning, training, and evaluation. The Incident Action Plans are managed under this function.
- Logistics is responsible for the acquisition and deployment of resources.
- Finance and Administration is responsible for expenditure tracking, payments, and administrative services.

Proactive situation management utilizes management by objectives to:

- Establish SMART objectives
- Select strategy
- Allocate resources
- Evaluate outcomes

Verification of Objectives

At this time, you should be able to:

- Identify the purpose of IMS.
- Describe the core functions of IMS.
- Describe the concept of Management By Objectives.

Notes

Module V: Overview of Incident Response System (IRS)

Goal

The major goal of this module is to offer a complete overview of the organizational elements and duties within each IRS department.

Learning Objectives

After completing this module, participants will be able to understand the principles and features of IRS, organisation and staffing, terminology, staffing considerations, and reporting linkages.

Outline of the Module

The module will follow the outline given below:

Topic	Time
Module Overview	15 minutes
Lesson 1: Introduction of Incident Response System in India	30 minutes
Lesson 2: Introduction to Incident Response System	45 minutes
Lesson 1-2: Progress Check	15 minutes
Lesson 3: Scenario-Based Exercise	1 hour
Module Summary	15 minutes
Total Time	≈ 3 hours

Evolution of Incident Response System (IRS) in India

Introduction

India is subject to a wide range of natural and man-made disasters that impede its development. Disaster response management necessitates the use of existing administrative structures, civil society, and its diverse organisations. Apart from a lack of resources, it has been noticed that in times of disaster, a lack of coordination among multiple authorities and a lack of role definition among diverse players pose major obstacles.

Learning Objectives

At the end of this lesson, we will be able to understand the journey to IRS Guidelines in India

IRS in India:

The Government of India (GOI) decided to look at the world's best practices after realizing certain shortcomings in response and a desire to close critical gaps. In this pursuit, the High Power Committee (HPC) on Disaster Management constituted by the Government of India under the chairmanship of Mr. Pant decided to look closely at the United States of America (USA) Incident Command System (ICS), which was identified as one of the global best practices in disaster management.

The journey of looking at ICS, studying it, reflecting upon our system of management of disasters -its strengths & weaknesses and picking up the learning points from ICS, exploring the institutionalization issues, training strategies and actual conduct of trainings, practicing this system by some of these trained officers in their working, conduct of some pilot projects in three states, number of workshops by NDMA throughout the country in course of preparation of guidelines, finalization of Incident Response System (IRS) guidelines, NIDM taking up training programmes and finalization of training manual for IRS etc. has been long but has been a journey of making progress and moving forward continuously. A brief outline of this journey is given below. (Source: https://nidm.gov.in/PDF/modules/irs-1.pdf).

Journey to IRS Guidelines:

- HPC recommendations of ICS as one of the global best practices.
- From 2003 onwards close look at ICS by Government of India- Interaction with experts [United States Agency for International Development (USAID), United States Forest Service (USFS), Federal Emergency Management Agency (FEMA)].

- Designating a National nodal training institute & developing a core group of master trainers at the national level (NIDM, LBSNAA).
- Training core group from states, Regional Training Institutes (RTIs) & then State ATIs.
- Taking up a few pilot projects of using ICS and developing Incident Management Team (IMT).
- Series of adaptation workshops, consultations, practicing part of this system by trained individuals, the conduct of training programmes etc. given further drive-by NDMA leading to a critical mass of people in the country with exposure to these concepts.
- NDMA constituted a core group to take this task in a focused manner in 2008 which met regularly, and reviewed knowledge & experience gained so far.
- Conduct of 4 Regional Workshops.
- Participation of representatives from GOI, State/UT governments, United States Agency for International Development (USAID), United States Forest Service (USFS), Training Institutions [National Institute of Disaster Management (NIDM), Lal Bahadur Shastri National Academy Of Administration (LBSNAA), Regional training Institutes (RTIs), Administrative Training Institutes (ATIs) etc.] & Other experts in the field.
- Study of adaptation of ICS by other countries.
- Circulation of vetting of draft circulation to all States, Union territories for comments.
- Incident Response System (IRS) Guidelines Issued in July 2010 by NDMA.
- NDMA sensitization workshops at state government level.
- Conduct of ToTs by NIDM & development of Training modules by NIDM.

Overview to Incident Response System (IRS)

Introduction

The Incident Response System (IRS) is an effective mechanism of reducing the scope for ad-hoc measures in response. It incorporates all the tasks that may be performed during disaster management irrespective of their level of complexity. It envisages a composite team with various Sections to attend to all the possible response requirements. The IRS identifies and designates officers to perform various duties and gets them trained for their respective roles. If IRS is put in place and stakeholders are trained and made aware of their roles, it will greatly help in reducing chaos and confusion during the response phase. Every one will know what needs to be done, who will do it and who is in command, etc.

IRS is a flexible system and all the Sections, Branches and Units need not be activated at the same time. Various Sections, Branches and Units need to be activated only as and when they are required.

Learning Objectives

At the end of this lesson, we will be able to understand the IRS Organisation, Features of IRS, The Incident Response Teams (IRTs) at State and District Levels

IRS Organisation

The Incident Response System (IRS) is a useful tool for decreasing ad-hoc response tactics. It envisions a multi-sectioned composite team to handle all conceivable reaction requirements. The IRS assigns officers to diverse responsibilities and trains them in their new jobs. It also stresses the need of properly documenting diverse operations in order to improve planning, accountability, and analysis. During the reaction phase, this will tremendously assist in decreasing chaos and confusion. Everyone will be aware of what has to be done, who will be responsible for it, and who is in charge.

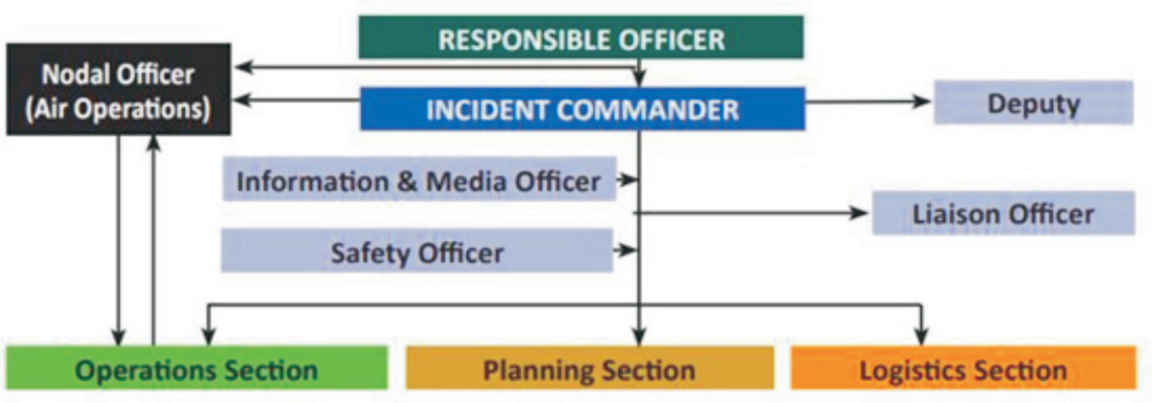


Figure: Broad organization of IRS

At the state and district levels, Responsible Officers (ROs) have been selected to oversee incident response management. The Incident Commander (IC), who will handle the incident through Incident Response Teams (IRTs), may assign responsibility to the Responsible Team.

The Features of IRS

Incident Response System is the facilities, equipment, personnel, procedure and communications operating within a common organizational structure, with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

The Incident Response System being a management system has several salient features. This module highlights these and the information that you acquire from this training module will help to sharpen your management skills, and better equip you to be effective incident or event managers.

The IRS has a number of attributes or system features and because of these features, IRS has the flexibility and adaptability to be applied to a wide variety of incidents and events both small and large. It is these features working together which make IRS a real management system. In this module, twelve of the major features of the system that will be briefly introduced are mentioned below:

- Management by Objectives
- Unity of Command and Chain of Command
- Transfer of Command
- Organisational Flexibility
- Span of Control
- Area Command
- Unified Command (UC)
- Common Terminology
- Accountability

- Integrated Communications
- Resource Management
- The Incident Action Plan (IAP), Briefing and Debriefing Meetings

Incident Response Teams (IRTs)

As indicated in the diagram below, the IRT is made up of all ranks within the IRS organisation and is led by the Incident Commander. The Operations Section assists in the planning and execution of various tactical operations necessary in the disaster response. The Planning Section assists in the gathering of information and the preparation of plans as needed. The Logistics Section evaluates resource availability and demand and takes steps to acquire them.

IRTs will function at State, District, Sub-Division and the Tehsil / Block levels. The IRTs will be pre-designated at these levels, and when the relevant Responsible Officer receives an Early Warning, they will be activated. If a disaster strikes without notice, the local IRT will respond and, if necessary, call the Responsible Officer for additional assistance. The IRTs will be pre-designated at these levels, and when the relevant Responsible Officer receives an Early Warning, they will be activated. If a disaster strikes without notice, the local IRT will respond and, if necessary, call the Responsible Officer for additional assistance.

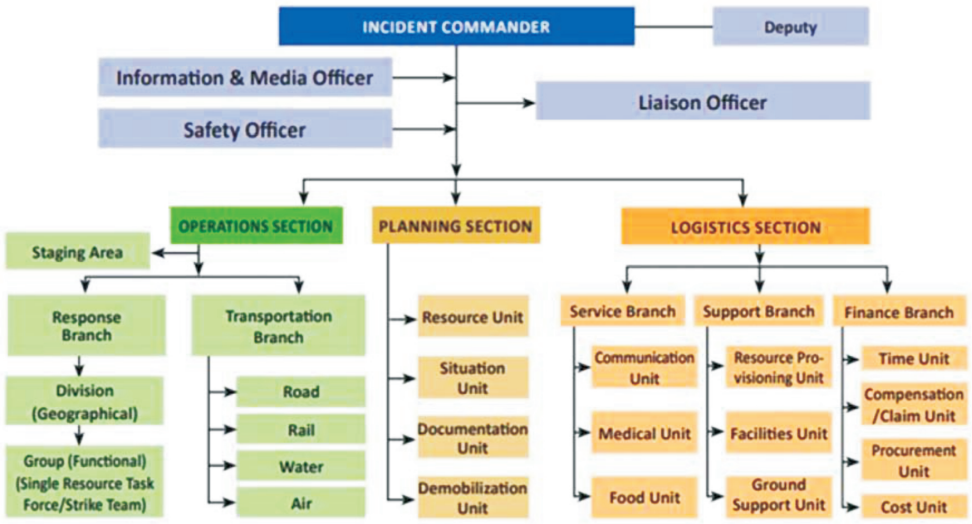
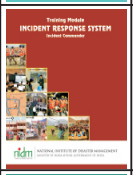
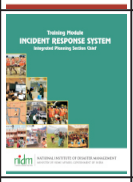
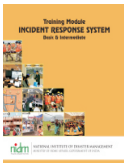
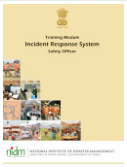
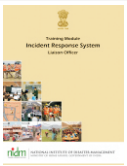
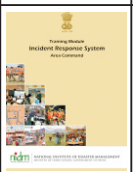


Figure: Organisational Chart of IRS

IRS Capacity Building at NIDM

NIDM has taken up the nodal role in getting the training manuals developed to promote the Incident Response System among disaster responders i.e., disaster management teams and administrators. These modules are designed to provide management skills to those who have been working in disaster management and incident response planning. The modules also provide detailed quick planning on how to handle the disaster effectively, including training of trainers.

List of Training module prepared by NIDM on IRS are as follows

Sl No.	Module	Title of Module	Year of Publication
1		Incident Response System - Logistics Section: Training Module	2015
2		Incident Response System - Operations Section Chief: Training Module	2015
3		Incident Response System - Incident Commander: Training Module	2015
4		Incident Response System - Integrated Planning Section Chief: Training Module	2015
5		Incident Response System - Basic & Intermediate: Training Module	2015
6		Incident Response System - Safety Officer: Training Module	2014
7		Incident Response System - Liaison Officer: Training Module	2014
8		Incident Response System - Area Command: Training Module	2014
9		Incident Response System - Advanced IRS: Training Module	2014

Lessons 1-2: Progress Check

Take a few moments to answer the questions below.

I. An EOC should only be activated during an emergency response

- True
- False

II. What do you understand by Span of Control

_____

III. During a response to an emergency, joint or unified management requires other agencies to give up their responsibilities and accountabilities?

- True
- False

IV. In IRS, the optimal span of control for staff supervision is 1-5.

- True
- False

(Please refer to Annexure-I for the key to progress check.)

Scenario-Based Exercise

Instructions

Within this lesson, you will have a chance to put into action the information you have learned about IRS.

The participants will be divided into three groups. Within the framework of the Incident Response System Organisation Chart, the participants will carry out the exercise on Operations, Planning and Logistics. The groups will be given 20 minutes to carry out the exercise and 10 minutes for each group to present their work. The respective group with the consent of their group members will decide the presenter among them. The presentation can be done by one person or all group members can take some part in it.

Scenario

Dronanagar is a district with an area of 1000 sq. km. and a population of more than 10 million. The district has 6 tehsils, 8 blocks and 150 villages within its administrative boundary. Due to its geographical location, the district is prone to various hazards.

In the early morning around 0800 hrs, the district was jolted by a high-intensity earthquake that wreaked havoc on 4 tehsils, 5 blocks and 110 villages. The total population affected due to the event is around 8 million. The initial report depicts damage to infrastructure and structure (several buildings, public utilities), and injury to thousands of people. Though no fatalities were reported yet the devastation was calling for a quick response to keep the things under control. Later updates of the event were that many people had been reported missing and family members were searching through the ruins of destroyed houses. Being the Incident Commander, you have all responsibilities of the IRS function.

Resources Available

Health Department: 10 Hospitals (2 damaged due to the event), 200 human resources, 20 ambulance

Police Department: 5 Police Stations, 300 personnel and 50 vehicles

Fire Department: 5 Fire Stations, 200 personnel and 20 vehicles

District Disaster Management Authority: 50 personnel

In addition, there are many Community-Based Organisations and their volunteer network that are also available to support in any emergency

Group 1 - Operation

The Operations Section is responsible for managing all tactical operations at an incident.

- Elucidate your responsibilities under the section.
- List facilities on a priority basis that will be needed to effectively manage this incident.
- Strategies for the transportation of resources, persons and relief material

Group 2 - Planning

The Planning Section is responsible for managing all information relevant to an incident. It collects, evaluates, processes, and disseminates information for use at the incident.

- Elucidate your responsibilities under the section.
- List the Technical Specialists that required for the incident.
- Develop a Contingency Plan for the possibility of additional seismic shakes.p

Group 3 - Logistic

The Logistic Section provides all incident support needs through its three units namely support, service and finance.

- Elucidate your responsibilities under the section.
- The resources required other than the available one.
- Strategies for the establishment of Incident Command Post, Relief Camps and for cost analysis of the damages.

Module Summary

Realization of certain shortcomings in India's response system and a desire to address the critical gaps led the Government of India (GoI) to look at the world's best practices. The GoI found that the system evolved for firefighting in California is very comprehensive and thus decided to adopt Incident Command System (ICS).

The Incident Response System (IRS) provides a systematic, proactive approach guiding the concerned departments and agencies at all levels of government, the private sectors, and Non-Governmental Organizations to work flawlessly in a disaster situation. The basic aim of the present training modules is to promote the Incident Response System among disaster responders i.e. disaster management teams and administrators. These modules are designed to provide management skills to those who have been working in disaster management and incident response planning. The modules also provide detailed quick planning on how to handle the disaster effectively.

This Module briefly describes the core principles and features of the Incident Response System. Collectively, these features identify the unique quality of the IRS as an incident or event management system.

Notes

Module VI: Public Health Emergency Preparedness and Response at Points of Entry (PoE)

Goal

The main goal of this module is to provide participants with the basic concepts and components of preparedness and response at Points of Entry (PoE).

Learning Objectives

After completing this module, participants will develop an understanding of:

- Basic concept of Points of Entry (PoE)
- Regular Functioning of PoE and its role in Public Health Emergency of International Concern (PHEIC)
- Surveillance & Monitoring mechanism at PoE
- Concept of Public Health Emergency Operations Centre (PHEOC) at PoE

Outline of the Module

The module will follow the outline given below:

Topic	Time
Module Overview	15 minutes
Lesson 1: Basic Concepts and Functions at PoE	30 minutes
Lesson 2: Public Health Emergency Contingency Plan (PHECP)	30 minutes
Lesson 3: Surveillance at PoE in coordination with Integrated Disease Surveillance Programme (IDSP)	30 minutes
Lesson 4: Concept of Public Health Emergency Operation Centre (PHEOC) at PoE	30 minutes
Lesson 5: Case scenario	1 hour
Lesson 1-4: Progress Check	20 minutes
Module Summary	15 minutes
Total Time	≈ 4 hours

Basic Concepts and Functions at PoE

Introduction

This lesson deals with the basic concepts of PoE, its types and function along with Public Health Emergency of International Concern (PHEIC).

Learning Objective

At the end of this section, participants will be able to define PoE and describe its types, functions and PHEIC.

Points of Entry

The IHR define a PoE as "a passage for international entry or exit of travelers, baggage, cargo, containers, conveyances, goods, and postal parcels, as well as agencies and areas providing services to them on entry or exit".

Under the IHR, states parties are requested to maintain effective public health measures and response capacity at designated points of entry to:

- protect the health of travelers and populations.
- ensure that ports, airports, and ground crossings, as well as ships, aircraft, and ground transportation, are in a sanitary condition; and
- contain risks at source, respond to emergencies and implement public health recommendations while limiting unnecessary health-based restrictions on international traffic and trade.

ations while limiting unnecessary health-based restrictions on international traffic and trade.

Types of PoE

There are 3 types of PoE:

- International airports
- Ports
- Ground crossings

Public Health Emergency of International Concern (PHEIC)

A Public Health Emergency of International Concern, or PHEIC, is defined in the IHR (2005) as "an

extraordinary event that is determined to constitute a public health risk to other states through the international spread of disease and potentially require a coordinated international response".

Once a WHO member country identifies an event of concern, the country must assess the public health risks of the event within 48 hours. If the event is determined to be notifiable under the IHR, the country must report the information to WHO within 24 hours. Some diseases always require reporting under the IHR, no matter when or where they occur, while others become notifiable when they represent an unusual risk or situation.

Always Notifiable:

- Smallpox
- Poliomyelitis due to wild-type poliovirus
- Human influenza is caused by a new subtype
- Severe acute respiratory syndrome (SARS)

Other Potentially Notifiable Events:

- May include cholera, pneumonic plague, yellow fever, viral hemorrhagic fever, West Nile fever, and any others that meet the criteria laid out by the IHR.
- Other biological, radiological, or chemical events that meet IHR criteria.

(Note: For more details about IHR and PHEIC, please refer to Module-I Lesson-2)

Function of PoE

Airport Health Organizations (APHOs), Port Health Organizations (PHOs) and Land Port Health Organizations (LPHOs) are the Health Units working under Annex 1B of IHR-2005 at Points of Entry (PoE). The PoE health units are established by the Government of India under the Directorate General of Health Services (DGHS), Central International Health division to implement the Article 22 and various other Articles related to the Ships and Port areas, Aircraft and Airport Areas and Ground Crossings and relevant surrounding areas. The nodal officer in charge of all the PoEs is DDG(IH). Basic aim of these organizations is to control and prevent the international spread of PHEICs in compliance with International Health regulations, vis-a-vis, Indian Aircraft (Public Health) Rules 1954 as well as Indian Port Health Rules 1955.

PoE These health units at PoE have trained technical manpower to prevent any vector-borne diseases from entering or exiting PoEs and carry out the obligation under IHR (2005).

The major functions of APHOs and LPHOs are:

1. Implementation of Health response at PoEs.
2. Screening of international passengers for diseases under surveillance.
3. Vector Surveillance: Disinfection, disinsection and deratting of conveyances, cargo etc.
4. Supervision of sanitation, drinking water supply, anti-mosquito and anti-rodent work.
5. Public Health clearance of human remains.

6. Administration of yellow fever vaccine and issue yellow fever vaccination certificates at identified yellow-fever vaccination centres.
7. Quarantine of passengers for Yellow fever disease.
8. Attend medical emergencies in flight/ ships/ international conveyances and at PoE facilities.
9. Implementation of Food Safety and Standards Act, 2006 (FSS Act, 2006) and Inspection of food catering establishments inside the premises of airports and ports under the Prevention of Food Adulteration Act.
10. Coordination with Central International Health Division, DGHS, MoHFW and counterpart PoE in the event of a suspected PHEIC.
11. Development of Capacities (manpower) for surveillance of CBRN events at PoEs
12. Coordination for timely response by development of Contingency plans for each POE by:
    a. Identification of nodal persons at PoEs.
    b. Training at PoEs in the above disciplines.
    c. Coordination with the existing manpower and resources for responding to PHEIC.

The major functions of PHOs are:

1. Implementation of Health response at PoEs.
2. Screening of international passengers for diseases under surveillance.
3. Vector Surveillance: Disinfection, disinsection and deratting of conveyances, cargo etc.
4. Supervision of sanitation, drinking water supply, anti-mosquito and anti-rodent work.
5. Public Health clearance of human remains.
6. Health clearance of ships
7. Provision of medical facilities for seamen such as for their pre-entry and periodical examination for physical fitness.
8. Port quarantine work: The health check of international passengers referred by immigration staff at seaports.
9. Issue of Ship Sanitation Control Certificate and Ship Sanitation Control Exemption Certificate.
10. Administration of yellow fever vaccine and issue of the yellow fever vaccination certificates at identified yellow fever vaccination centres.
11. Implementation of FSS Act 2006 and Inspection of food catering establishments inside the premises of airports and ports under the Prevention of Food Adulteration Act.
12. Coordination with Central International Health Division, DGHS, MoHFW and counterpart PoE in the event of a suspected PHEIC.
13. Development of Capacities (manpower) for surveillance for CBRN events at PoEs
14. Coordination for timely response by development of Contingency plans for each PoE by:
    a. Identification of nodal persons at PoEs.
    b. Training at PoEs in the above disciplines.
    c. Coordination with the existing manpower and resources for responding to PHEIC.

Lesson -2

Public Health Emergency Contingency Plan (PHECP)

Introduction

This lesson summarizes the importance of the Public Health Emergency Contingency Plan (PHECP) as per IHR (2005).

Learning Objective

At the end of the session, the participants will be able to understand the importance of PHECP and its objectives.

Public Health Emergency Contingency Plan (PHECP)

PHECP are maintained in a designated PoE for responding to events that may constitute a PHEIC as per IHR 2005). It is vitally important that the National Public Health Authority (NaPHA), in close coordination with competent PoE authorities, guide public health emergency planning at the designated PoE.

Objectives of PHECP:

- Ensure robust alignment and interoperability between emergency response plans at the local, national, and international levels.
- Coordinate with the authorities at the state and national level and update national policy accordingly to support the PHECP.
- Support the establishment and building of relationships between public health authorities and concerned PoE stakeholders, agencies, and service providers.
- Support the building of core capacities at designated PoE.
- Facilitate multisectoral collaboration that is required to build an effective PHECP.
- Support the enhancement of technical competencies of NaPHA and local PHOs.
- Support the harmonization of regional and global emergency plans.

Guiding Principles:

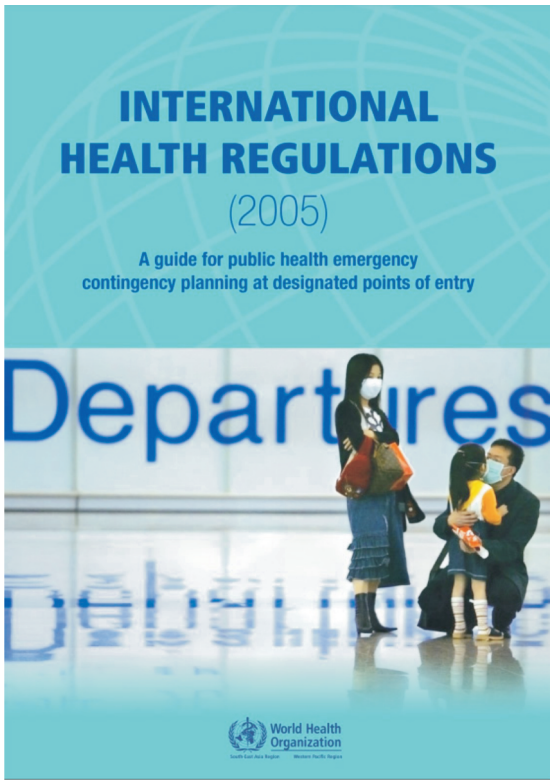
PHECP for designated PoE should:

- Be flexible and adaptable to match a wide variety of public health contingencies, especially emerging diseases such as an influenza pandemic.
- Ensure broad consideration of existing national and local plans, including public and private sector plans, laws, regulations, and policies.

- Plan to develop surge capacity on an "as required" basis so that it can be engaged when needed, rather than as a "permanent" function.
- Ensure full respect for the dignity, human rights, and fundamental freedoms of persons as per IHR (2005).
- Place equal focus on readiness, response, and recovery.
- Ensure budgeting for regular exercising, refreshing, and maintenance of plans.

The publication can be accessed from the following weblink:

https://www.who.int/publications/i/item/international-health-regulations-(-2005)-a-guide-for-public-health-emergency-contingency-planning-at-designated-points-of-entry



Lesson -3

Surveillance at PoE in coordination with Integrated Disease Surveillance Programme (IDSP)

Introduction

This lesson summarizes surveillance at PoE in coordination with IDSP and identifies the key stakeholders involved in emergency preparedness and response.

Learning Objective

At the end of this session, participants will develop an understanding of surveillance and coordination, data collection, and dissemination of information from IDSP at PoE.

Surveillance at PoE

India, due to its physiographic and climatic conditions, is one of the disaster-prone areas of the world. Many of the international PoE (ports, airports, and ground crossings) in India are in zones that are vulnerable to natural hazards.

India has a comprehensive public health response system at its borders with robust coordination, collaboration mechanisms, and integration of IDSP with the Integrated Health Information Portal (IHIP) for the effective implementation of public health measures.

There is passive surveillance at the identified Points of Entry (ports, airports, and ground crossings). Passengers traveling from different countries and suffering from symptoms of diseases of concern are informed to report to the Health Unit at the PoE for further evaluation and medical examination.

There are provisions for the bi-directional flow of information within the system. Information collected by the concerned health unit at PoE is relayed to the IDSP at the state and national levels at the National Centre for Disease Control (NCDC) through the Central International Health Division at the Dte.GHS. Relevant information is also relayed from the Central and State units to the peripheral machinery for appropriate action when necessary.

Whenever there is a rising trend or alert of illnesses or health events in any area, the trained Rapid Response Teams (RRT) respond, investigate, diagnose, and control the event/outbreak.

Stakeholders for preparedness and response at PoEs for public health emergencies and other emergencies

- Directorate General of Health Services (Dte.GHS), Ministry of Health and Family Welfare (MoHFW), Government of India

- Central International Health Division
- PoE Health Units-
  - o Airport Health Organisation (APHO)
  - o Port Health Organisation (PHO)
  - o Land Port Health Organisation (LPHO)
- National Centre for Disease Control (NCDC)
- Integrated Disease Surveillance Programme (IDSP)
- Ministry of Home Affairs (MHA)
- Bureau of Immigration India (BOI)
- Ministry of Civil Aviation (MoCA)
- Directorate General of Civil Aviation (DGCA)
- Ministry of Ports, Shipping and Waterways
- Land Port Authority of India (LPAI)
- Central Industrial Security Force (CISF,) Border Security Force (BSF)
- State Health Department
- Airline operators, Ship Operators, ICP Operators, PoE operators

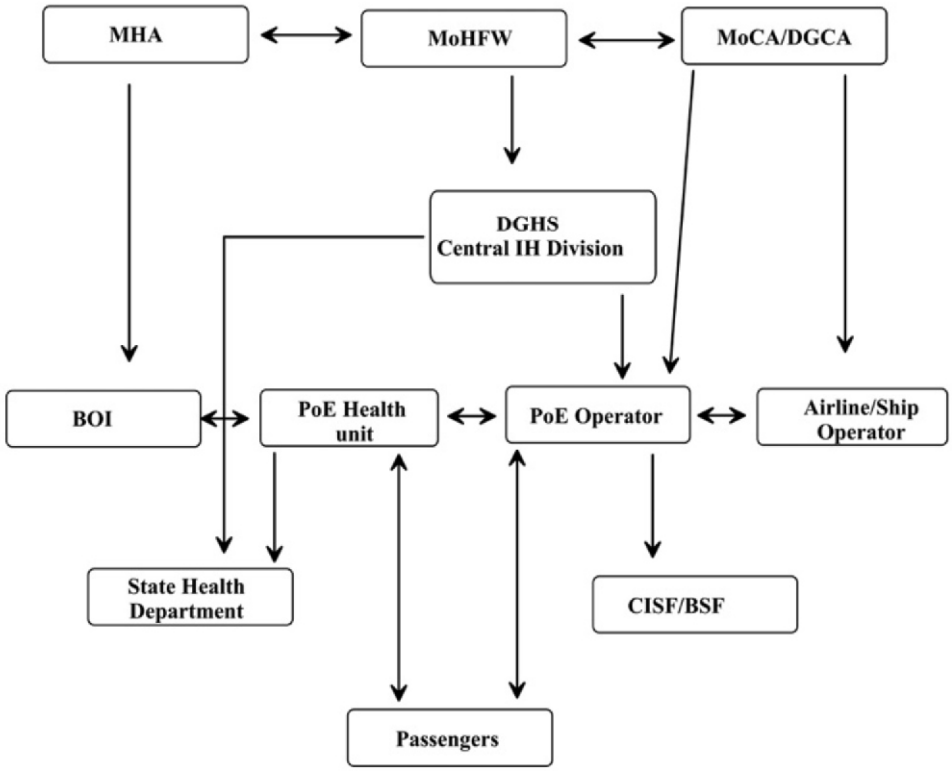


Figure: Information sharing mechanism among stakeholders during PHEIC (Photo credit- Dr. Avinash Sunthlia, Senior Medical Officer IH-MoHFW, Dte.GHS presented on April 13, 2022, in the webinar Public Health Emergency and Disaster Management during and beyond COVID-19)

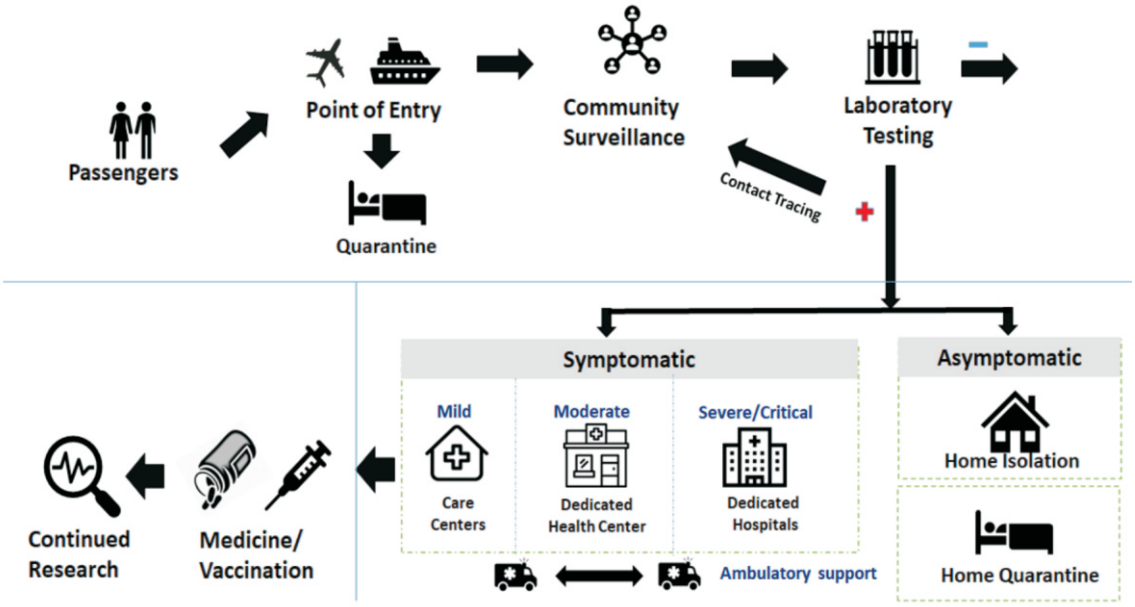


Figure: Information flow (Photo credit- Dr. Pradeep Khasnobis DDG, DM Cell - MoHFW, Govt. of India presented on April 19, 2022, for two days stakeholder meeting organized by NCDC.)

Please access the web portal created by the Central International Health division- Ministry of Health and Family Welfare (MOHFW) for more information regarding PoE at https://www.ihpoe.mohfw.gov.in/

Concept of Public Health Emergency Operations Centre (PHEOC) at PoE

Introduction

This lesson summarizes the concept of PHEOC at PoE and its components.

Learning Objective

At the end of the session, participants will understand the concept, purpose and relevance of establishing PHEOC at PoE.

EOC/PHEOC at PoE

The IHR (2005) requires that state parties develop, strengthen, and maintain their capacity to respond promptly and effectively to public health risks and public health emergencies. A functional PHEOC is an important component to meet these requirements. PHEOC can be a permanent or temporary structure that can be strengthened and customized based on the need of the specific emergency.

Purpose of EOC/PHEOC

The structure requires the public and private sector stakeholders to preferably leverage existing infrastructure or create new infrastructure to "coordinate resources, information, and emergency risk communication to respond to the public health threat".

The following components need to be considered for setting up of EOC/PHEOC at PoE:

- Response plans that contain verified location, contact, and emergency response information for IHR Focal Point, WHO IHR contact point, and PoE.
- Capability to receive, analyze, display, report, and share reports of reportable and unusual diseases and health conditions from PoE.
- Procedures and equipment in place to establish and maintain communications between the IHR Focal Point and WHO Regional/Headquarters offices as well as state and district levels.
- Infrastructure, personnel, and procedures in place sufficient to support IHR (2005) notification requirements (surveillance, detection, reporting, IHR focal point).
- Capability to produce and share a common operational picture.
- Strong communication and information system establishment with state EOC to further information to national IDSP and IHR focal point.

Recent example

Central International Health (IH) Division acted as an EOC during the ongoing COVID-19 pandemic in addition to its regular activities and PoE health units were strengthened to respond to the emergency.

Central Command Centre- The Central IH Division: during the COVID-19 pandemic

The Central IH Division war room headed by Deputy Director General (International Health) was engaged in systematic and coordinated approach to execute response plans at PoEs. The division was engaged in strategic micro-planning to ensure effective health screening measures and crowd management techniques at PoEs to treat travelers with respect, dignity, and human rights and minimize any distress associated with the health measures.

(Shared by Dr. Avinash Sunthlia, Senior Medical Officer, IH-MoHFW, Dte.GHS presented on April 13, 2022, in the webinar Public Health Emergency and Disaster Management during and beyond COVID-19)

Note: Please refer to Module III for more information about PHEOC.

Scenario-Based Exercise

COVID-19 is the infectious disease caused by the newly identified coronavirus, SARS-CoV-2 that emerged in China in December 2019 and has caused a worldwide pandemic. COVID-19 symptoms include cough, fever or chills, shortness of breath or difficulty breathing, muscle or body aches, sore throat, the new loss of taste or smell, diarrhea, headache, fatigue, nausea or vomiting, and congestion or runny nose. COVID-19 can be severe, and in some cases may lead to death.

Prevention is the only measure we can follow Covid Appropriate Behavior (CAB) i.e., hand washing, wearing a face mask, coughing into the bend of your elbow, staying home when you are sick, and practicing social distancing.

On 30 January 2020, India reported its first case of COVID-19 in Thrissur, Kerala, which rose to three cases by 03 February 2020; all were the students returning from Wuhan. Apart from these, no significant rise in transmissions was observed in February 2020. The Community Medicine department of the Government Medical College, Thrissur, conducted a detailed contact tracing with the District Health Authorities. On 04 March 2020, 22 new cases were reported, including 14 infected members of an Italian tourist group. Transmissions increased in India over the month after contacts of several people with travel history from the affected countries tested positive.

On 10 March 2020, a Vande Bharat flight carrying passengers with international travel history from Nepal, Italy, Spain, UK, China, and Singapore, landed in Pant Nagar, Uttarakhand. The passengers included students and residents returning home, working professionals scheduled to attend a conference, and tourists. The passengers would subsequently be traveling across Uttarakhand to their respective destinations using the various modes of transport available like buses, trains, taxis, and private vehicles.

The same plane is scheduled to fly to Delhi 2 hours later. The list of passengers for that flight includes several returning tourists as well as others with planned onward international travel.

The Epidemic Diseases Act (1897), and Disaster Management Act (2005) were yet to be invoked at this time.

Simultaneously, at a ground crossing adjacent to Nepal in the Champawat District, Uttarakhand, 15 people crossed the border from Nepal to India for trading and treatment, whereas 20 people crossed from the Champawat district to Nepal for touring and trading.

Participants will be divided into 4-5 teams and carry out the tasks assigned to each team.

Team 1: Land Port Health Organization

Instructions:

- Time: 45 minutes (25 minutes preparation and 20 minutes presentations and discussion)
- Designate and divide team members according to roles and responsibilities that exist at the ground crossings (like health officer, surveillance unit, emergency handlers, security staff, ambulance, nodal officer for suspected/ patient transfer, in charge of isolation and quarantine centre, etc.) based on the points given below:
    - o List out the preventive measures that would have been taken by your team to contain the COVID-19 infection at the initial stage at PoE to minimize the spread of infection across the state.
    - o List out the best practices that were adopted at PoE during the COVID-19 response.
    - o What areas can be strengthened to reduce/ mitigate the impact of PHEIC (Public Health Emergency of International Concern)?
    - o List out the stakeholders and their roles and responsibilities, and the stakeholder engagement plan that should be included in Public Health Emergency Contingency Plan (PHECP).
    - o Share your experiences of COVID-19 response at borders, international also within the state (interstate and checkpoints).

Team 2: Airport Health Organization

Instructions:

- Time: 45 minutes (25 minutes preparation and 20 minutes presentations and discussion)
- Designate and divide team members according to roles and responsibilities that exist at the airport (like health officer, surveillance unit, emergency handlers, security staff, ambulance, coordinator for suspected/ patient transfer, in charge of isolation and quarantine centre, etc.) based on the points given below:
    - o List out the preventive measures that would have been taken by your team (various stakeholders) to contain the COVID-19 infection at the initial stage at PoE to minimize the spread of infection across the state.
    - o List out the best practices that were adopted at PoE during the COVID-19 response.
    - o What areas can be strengthened to reduce/ mitigate the impact of PHEIC?
    - o List out the stakeholders and their roles and responsibilities, and the stakeholder engagement plan that should be included in PHECP.
    - o Share your experiences of COVID-19 response at the airport.

Team 3: IDSP State/District Surveillance Unit

Instructions:

- Time: 45 minutes (25 minutes preparation and 20 minutes presentations and discussion)
- Designate and divide team members according to role and responsibilities, coordination mechanism, and information flow based on the points given below:

- List out the roles and responsibilities of IDSP at the state and district level in this scenario.
- Suggest the mechanism of information flow and how it can be strengthened further during the pandemic.
- List out the relevant stakeholders and their roles and responsibilities, and the stakeholder engagement plan.
- Share the preparedness and response plan at the state and district level to effectively manage public health emergencies and disasters.
- Share your experiences of COVID-19 response at borders, international also within the state

Team 4: State/District Disaster Management Authority

Instructions:

- Time: 45 minutes (25 minutes preparation and 20 minutes presentations and discussion)
- Designate and divide team members according to role and responsibilities, coordination mechanism, and information flow based on the points given below:
  - List out the roles and responsibilities of DMA at the state and district level in this scenario.
  - List out the relevant stakeholders and their roles and responsibilities, and stakeholder engagement plan.
  - Share the preparedness and response plan at the state and district level to effectively manage public health emergencies and disasters.
  - Suggest the coordination and collaboration mechanism with the health department and how it can be strengthened further during the pandemic.
  - Share your experiences of COVID-19 response at international borders, and within the state (interstate and checkpoints).

Team 5: Community Health Worker (CHW) /Front Line Worker (FLW)

Instructions:

- Time: 45 minutes (25 minutes preparation and 20 minutes presentations and discussion)
- Designate and divide team members according to role and responsibilities, coordination mechanism, and risk communication and community engagement strategy on the points given below:
  - List out the roles and responsibilities at the community level in this scenario.
  - Suggest the mechanism of risk communication and community engagement during the pandemic including Do's and Don'ts.
  - Suggest community-based preparedness and response plan to effectively manage public health emergencies and disasters.
  - List the essential logistics and support required by CHW/FLW to effectively perform the duty during this pandemic.
  - Share your experiences of COVID-19 response at borders, international also within the state (interstate and checkpoints).

Lesson 1-4: Progress Check

Take a few moments to answer the questions below.

I. List out any 4 functions of Airport Health Organizations (APHOs) and Land Port Health Organizations (LPHOs)

_____

_____

_____

II. What stands for PHECP regarding Points of Entry preparedness and response:

- Public Health Emergency Curriculum Plan
- Popular Hospital Emergency Customized plan
- Public Health Emergency Contingency Plan
- Public Health Emergency Customized Plan

III. PHECP can be developed and maintained:

- At a designated PoE for responding to Public Health Emergency of International Concern (PHEIC)
- In a country of epidemics and other health issues
- Only at airports for biological disasters only
- Only at Seaports for biological and chemical disasters only

(Please refer to Annexure-I for the key to progress check.)

Module Summary

IHR requires WHO Member States to have specific core capacities at all international PoEs. Further, each WHO Member State is required to provide the WHO with a list of designated PoEs, such as international ports, airports, and ground crossings, where the specific core capacities have been developed.

India is a member country of the WHO and a signatory to the International Health Regulations (2005). In view of this, the country must be compliant with the IHR 2005 and develop specific core capacities for routine measures and for surveillance and response during PHEIC at all designated international PoEs.

Airports, ports, and ground crossings are required to have health units for undertaking public health measures during routine times and specific measures during the time of PHEIC. Consequent to the adoption of the IHR 2005, there is a need to develop and maintain PHECP to prevent, detect and protect against public health threats across the borders.

Setting up of EOCs/PHEOCs at PoEs can be facilitated by the public and private sector stakeholders to preferably leverage existing infrastructure or create new infrastructure to coordinate resources, information, and emergency risk communication to respond to public health emergencies.

Group Work and Presentations

Goal

The group work provides an opportunity to practice the concept and principles of PHEM, IMS, and PHEOC at their workplace.

Learning Objectives

By the end of this group work, the participant will be able to develop a Public Health Emergency Operations Centre (PHEOC) and Emergency Operation Plan using the concept and principles of Public Health Emergency Management (PHEM) and Incident Management System (IMS)

- Demonstrate comprehension of the key concepts and skills in Public Health Emergency Preparedness and Response.

State the principles, elements, and factors of Public Health Emergency Management.

Guidance for Group Work

1. The participants would work in groups on a defined group exercise. In one group preferably keep the number of members not more than 5. The exercise has been designed based on the principles discussed in the modules.
2. The groups would be constituted by the facilitators and would select a chairman and a rapporteur to facilitate the group deliberations.
3. The context of the group work should be based on an existing system, experiences, and all the principles of PHEM, IMS, and PHEOC.
4. Following are the suggested group activities. One activity is to be done by one group each. The activity would be allocated randomly (lottery system) to the groups by the facilitators to:
   I. develop the PHEOC for the State as per the framework of WHO using the approach of Incident Management System (IMS) and develop Emergency Operation Plan (EOP).
   II. develop the PHEOC for the District as per the framework of WHO using the approach of Incident Management System (IMS) and develop Emergency Operation Plan (EOP) for the district.
   III. develop PHEOC and EOP at the district level for mass gatherings like Kumbh, religious gatherings, conglomeration, etc.
   IV. develop PHEOC and EOP for specific situations like outbreak/epidemic/pandemic.
   V. develop PHEOC and EOP for the situations of natural disasters (earthquake, flood, cyclone, tsunami, heatstroke, etc.) and chemical disasters (spillage, leakage, etc.).
5. The groups need to make presentations of 10 minutes each followed by a discussion of 5 minutes. The ppt may have about 10 slides covering situation analysis and putting principles into practice.

Course Summary

Basics of Public Health Emergency and Disaster Management included definitions and description of emergency, disaster, public health emergency, emergency management and One Health Approach.

International and National Frameworks for Public Health Emergency and Disaster Management included the provisions of IHR 2005 in detail and the obligations of WHO and the member states. It described a Public Health Emergency of International Concern and the process of its implementation.

The Emergency Operations Plan (EOP) is a document that describes how an agency will

manage its responses to emergencies of various types. The EOP lays out the Concept of Operations (CONOPs), which defines the essential components of an emergency response.

A Public Health Emergency Operations Centre (PHEOC) is a physical location for the coordination of information and resources to support incident management activities for any type of incident. PHEOC facilities may be dedicated or multi-purpose. Public Health Emergency Operations Centre (PHEOC) integrates traditional public health services into an existing emergency operations model. It fosters public health preparedness, planning, and capacity building.

The Incident Management System (IMS) is the organization's structure for managing all hazards and emergencies.

The Incident Response System (IRS) is a useful tool for decreasing ad-hoc response tactics. It envisions a multi-sectioned composite team to handle all conceivable reaction requirements.

The IHR define a PoE as “a passage for international entry or exit of travelers, baggage, cargo, containers, conveyances, goods, and postal parcels, as well as agencies and areas providing services to them on entry or exit”.

PHECP are maintained in a designated PoE for responding to events that may constitute a PHEIC as per IHR (2005). It is vitally important that the National Public Health Authority (NaPHA), in close coordination with competent PoE authorities, guide public health emergency planning at the designated PoE.

The right message from the right person at the right time can save lives. The aim of CERC is to arm people with the knowledge they require to choose life-saving actions in dire circumstances. The psychological processes of those who are impacted by, responding to, or witnessing a crisis are central to CERC's design.

Verification of Objectives

At this time, you should be able to:

- Describe the basic concepts of public health emergency preparedness and response including COVID-19 pandemic management.
- Describe the Public Health Emergency Management (PHEM) principles and application of the Incident Management System (IMS) organizational model.
- Describe the purpose of the WHO Framework for a Public Health Emergency Operations Centre (PHEOC).
- Describe the purpose and value of an emergency operations plan.
- Describe the concepts of all-hazards response planning.
- Describe the purpose of the Concept of Operations (CONOPs).
- understand the principles of CERC.
- Describe the Incident Management System (IMS).
- Describe the key concepts of a PHEOC.
- To review key PHEOC infrastructure and information technology concepts.
- Understand the Incident Response System (IRS) and its application in India.
- Understand the basic concept of preparedness and response at Points of Entry (PoE) with respect to Public Health Emergency Management.

Participants' Feedback

1. Overall, how satisfied were you with this training?

Satisfied	Partially Satisfied	Not Satisfied

2. Would you recommend this training to others?
   - Yes
   - No

Agree	Partially Agree	Disagree

3. The objectives of the training were clearly defined

Agree	Partially Agree	Disagree

4. The topics covered were relevant to me

Agree	Partially Agree	Disagree

5. The content was well organized and easy to follow

Agree	Partially Agree	Disagree

6. This training experience will be useful in my work

Agree	Partially Agree	Disagree

7. The trainer was knowledgeable about the training topics

Agree	Partially Agree	Disagree

8. The time allotted for the training was sufficient

Agree	Partially Agree	Disagree

9. Questions were encouraged

Agree	Partially Agree	Disagree

10. Instructions were clear and understandable

Agree	Partially Agree	Disagree

11. Overall, I found the training useful and informative

Agree	Partially Agree	Disagree

12. What did you like the most about the training?

_____

_____

_____

13. What aspects of the training could be improved?

_____

_____

_____

14. How do you hope to change your practice as a result of this training?

_____

_____

_____

15. Do you have any other comments:

_____

_____

_____

Annexure-I Key: Progress Check

Module I: Lesson 1

Health communication: Activities for informing, influencing, and motivating individual, institutional, and public audiences about important health issues.

Health emergency: A type of event or imminent threat that produces or has the potential to produce a range of health consequences, and which requires coordinated action, usually urgent and often non-routine. A health emergency may pose a substantial risk of significant morbidity or mortality in a community.

Disasters: A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources

Emergency Management: Emergency management is the organization and management of resources and responsibilities for dealing with all elements of emergencies.

Module I: Lesson 2

I. What are the major obligations of the member states with respect to International Health Regulations, 2005?

- **Designation of a national focal point**
- **Develop core capacities**
- **Assess events and notify potential PHEICs**
- **Develop legal and administrative framework**
- **Comply with routine 24X7 provisions**

II. What are the 4 questions asked in order to decide whether an event constitutes a PHEIC or not?

- **Is the public health impact of this event serious?**
- **Is the event unusual or unexpected?**
- **Is there a significant risk of international spread?**
- **Is there a significant risk of international trade or travel restrictions?**

III. What is the difference between IHR and GHSA?

a. IHR is the roadmap and GHSA is the process to reach public health goals.

b. IHR is the process and GHSA is the roadmap to reach public health goals.

c. IHR is the exercises and GHSA is the policies.

d. IHR is the training and GHSA is the exercises

IV. In which category do the GHSA action package working groups address antimicrobial resistance, zoonotic diseases, biosafety/biosecurity, and immunization?

a. Prevent

b. Detect

c. Prepare

d. Respond

V. RRTs consist of

a. An epidemiologist

b. A clinician and

c. A microbiologist.

d. All of the above

VI. Name some **response** mechanisms existing in the national framework to fulfil IHR core capacities.

RRT, SHOC, EMR

Module I: Lesson 3

I. According to the WHO Framework, an public health emergency operations centre (PHEOC) is a physical location for the coordination of **information** and **resources** to support incident management activities for any type of incident.

II. A PHEOC is an emergency operations centre (EOC) that specializes in the **command, control,** and **coordination** requirements of responding to emergencies that involve health consequences and public health threats.

III. What are the purposes of a PHEOC?

The purpose of a PHEOC is:

- **To support public health response needs.**
- **To provide the capability to receive, analyze, display, and monitor incident information.**
- **To be able to identify, organize, deploy, and track resources.**
- **To be able to communicate, collaborate, and coordinate from a centralized location.**

IV. The PHEOC must have identified and well-trained **staff, systems,** and **infrastructure**.

V. Handbook B: Physical Structures, Technology, and Information Systems is intended as a practical guide for _____, decision-makers, IT support, and others involved designing, implementing, and managing a PHEOC.

a. Thinkers

b. Construction workers

c. Planners

d. Epidemiologists

Module I: Lesson 4

I. List the purposes of the EOP:

Possible answers:

- **Clarify cooperating agencies' roles and responsibilities.**
- **Identify the required resources.**
- **Provide clear lines of authority.**
- **Cover periods before, during, and after the emergency.**
- **Clarify the health authority's role.**

II. The ERP lays out the Concept of Operations (CONOPS), which defines the **essential components** of the emergency response and defines the **roles and responsibilities** between the different stakeholders in a multi-sectoral environment (WHO, NGOs, other Ministries, etc.).

III. List levels of responsibilities under the Concept of Operations.

Possible answers can be - **Strategic, operational, and tactical level responsibilities, Response structure, Response grading, Escalating levels of response, and Organization of response components.**

Module I: Lesson 5

I. What is included in an all-hazards approach?

An all-hazards approach includes incident management processes and structures, with clear decision-making processes, supported by hazard-specific response plans developed in response to a comprehensive risk assessment.

II. Plans often provide details about required strategies, resources, and considerations. What might these plans include?

- **Threat or occurrence thresholds that trigger alerts and escalating levels of emergency response efforts.**
- **Technical and scientific capacities that need to be engaged (laboratories, subject matter experts).**
- **Data collection and processing requirements.**
- **Risk communication messaging, public warning, community engagement.**
- **Inter-agency communication processes.**
- **Decision approval processes.**
- **Legal and ethical issues.**

- **Cultural sensitivities.**
- **Material acquisition and deployment processes.**
- **Key partners to engage.**

III. Choose whether the following statements are True or False:

a. Event or hazard-specific plans are best built on the all-hazards approach.
   - o **True**
   - o False

b. The all-hazard approach includes an incident management process and structure with clear decision-making processes.
   - o **True**
   - o False

IV. What are the processes and resources which may be included in event or hazard-specific response and management plans? Tick [✓] all that apply in the options given below:

Technical and scientific capacities that need to be engaged.	✓
Decision approval processes.	✓
Key partners to engage.	✓

Module I: Lesson 6

Scenario

The PHEOC is activated for a response to a COVID-19 upsurge of cases from a metro city. There are 100 confirmed cases from three colonies from slum areas with five deaths. Local hospitals and dispensaries are overwhelmed by the number of patients and requesting assistance from the PHEOC for additional medical supplies and transferring patients to another facility. The local healthcare facility is requesting Rapid Response Teams from the PHEOC to deploy to the field to assist with contact tracing.

Work within teams to determine which of the activities would be associated with the assigned function.

Activity	Functional Section
Develop an Incident Action Plan	**Plans**
Coordinate with the alternative healthcare facilities in the impacted region for taking the overflow of patients from local hospital and dispensaries.	**Operations**
Gather and display information on the location and bed availability of alternative healthcare facilities in the impacted region.	**Plans**
Identify and convene the Rapid Response Team to d eploy to the field.	**Operations**

Activity	Functional Section
Arrange transportation for patients from the local hospital to an alternate facility.	**Logistics**
Make travel arrangements (book transportation and lodging) for the Rapid Response Team deployed to the field.	**Logistics**
Obtain and transport the requested medical supplies based on the request from the impacted local health facility.	**Logistics**
Prepare a budget for the response based on the response objectives.	**Finance and Administration**
Track the costs of the response.	**Finance and Administration**

Module II: Lesson 1-4

I. There are different activities given below. Please work within teams or as an individual to identify the elements of the emergency management programme which is associated with a given activity

Activity	Functional Section
To prevent identified risks or introduce measures to reduce their impact	**Prevention and mitigation**
Situation assessment, mobilization of resources, enhanced surveillance, contact tracing, and environmental health intervention and monitoring.	**Response**
Restoration of community infrastructure and resilience	**Recovery**
Surveillance and monitoring of potential or evolving threats	**Risk assessment**
Disease detection and outbreak prevention and control	**Prevention and mitigation**
Restoration of damaged infrastructure and resources, restoration of routine surveillance and monitoring activities	**Recovery**
Vaccinations of populations	**Prevention and mitigation**
Undertaking activities to react to an event proactively	**Response**
Restoration of routine surveillance and monitoring activities	**Recovery**
Vulnerability or threat assessment	**Risk assessment**

II. In your opinion, what are the three most important common factors in an emergency event?

Answers will vary, but could include any of the below or a combination:

- **Type, magnitude, location, and impact.**
- **Availability of human and material resources.**

- **Legal and policy environments and mandates.**
- **Strengths and limitations of emergency response and management agencies.**
- **Degrees of resilience in individuals, social systems, and health service agencies.**

III. List four of the essential pieces included within CONOPS/EOP.

Answers will vary but should include choices from the following

- **An all-hazards approach.**
- **Modular, scalable, or adaptable management structures that can be scaled.**
- **Unified management.**
- **Clear lines of accountability.**
- **Clearly defined roles and responsibilities for staff.**
- **Clearly articulated authorities, threat thresholds, and procedures for activation, escalation, and deactivation of emergency operations.**
- **Clearly articulated policies and procedures.**
- **Common terminology, functions, and technology.**
- **Capacity for integration or involvement with partner and stakeholder agencies.**
- **Sufficient capacity to manage public communications opportunities.**

IV. How can recognized risk factors be minimized in public health emergencies?

Awareness, appropriate planning, and attention to management processes.

V. What are the elements of emergency management?

- **Risk Assessment**
- **Prevention and Mitigation**
- **Preparedness**
- **Response**
- **Recovery**

VI. Responses to emergencies require processes and structures that support what activities?

- **Confident and competent decision-making and operational execution.**
- **Reliable and rapid processing of data and information into action plans.**
- **Rapid deployment of resources.**
- **Effective human and financial resourcing and accountability.**

VII. The Threat and Hazard Identification and Risk Assessment (THIRA) is

- **Three-step risk assessment process**
- Four-step hazard assessment process
- Two-step hazard assessment process

- Five-step hazard assessment process

Module II: Lesson 5

1. What are the principles of CERC?
   a. **Be First**
   b. **Be Right:**
   c. **Be Credible:**
   d. **Express Empathy:**
   e. **Promote Action:**
   f. **Show Respect:**

2. Mentioned Phases of a Crisis and the Communication Rhythm?
   a. **Preparation,**
   b. **Initial,**
   c. **Maintenance, and**
   d. **Recovery**

Module III: Lesson 1-3

There are two main types of PHEOC facilities: **Dedicated** and **Multi-purpose.**

I. Telecommunication **systems** and **networks** are selected based on available connections for workstation computers, mobile devices, and hardwired telephones.

II. Computer networks should be protected from **external** threats, including network attacks, power surges, and outages.

Module III: Lesson 4

Task I. Determine data to capture, process and display.

Possible Answers: **The number of cases and deaths; a map of the impacted area; and the incident management structure for this response.**

Task II. How to secure data?

Possible Answers: **Firewalls, encryption, password protection, up-to-date anti-virus software, and redundancy of data and hardware.**

Task III. Determine information and communication technology infrastructure.

Possible Answers: Telecommunication systems, video displays, computers, and internet connection.

Module IV: Lesson I

I. What is IMS?

Choose whether the following statements are True or False.

IMS represents the standard for public health emergency management.	**True** False
IMS establishes unique processes for planning and management of resources by objectives.	True **False**

II. What are some of the benefits that IMS helps to ensure?

The answer may include:

- **Efficient use of resources.**
- **Efficiency of timely response.**
- **Achievement of response objectives.**
- **Guaranteed funding for providing public health assistance.**
- **Efficient coordination of response.**

III. Provide an example of when IMS is used.

Examples may include-**Disease outbreaks (human, animal, and environmental health), Natural hazards, Human-caused hazards, and Planned events, etc.**

Module IV: Lesson 2

a. IMS Primary Function Descriptions: Place the letter of the description in column B next to its IMS primary function in Column A.

A	B
Management-**d**	a. Acquisition and deployment of resources function
Operations-**e**	b. Analysis, planning, training, and evaluation function
Plans-**b**	c. Expenditure tracking, payments, and administrative servicesfunction.
Logistics-**a**	d. Incident Manager and Deputy Incident Manager
Finance/Administration-**c**	e. Enables response activities

b. IMS Benefits: Which function do all the other core IMS functions report into?

Management

Module IV: Lesson 3

I. Transitioning from reactive response to proactive situation management and resolution requires to achieve objectives within limited time-frames. (Select the correct answer from choices given below to fill in the blank)

- A linear approach

- **Management by Objectives**
- Lack of planning
- Nothing more than is required in a reactive response

II. Select the appropriate option which is in the order of the four cyclically applied steps of the Proactive Situation Management model.

a. **Establish Objectives, Select strategy, Allocate resources and Evaluate outcomes**
b. Select strategy, Establish Objectives, Allocate resources, and Evaluate outcomes
c. Allocate resources, Establish Objectives, Select strategy, and Evaluate outcomes
d. Evaluate outcomes, Establish Objectives, Select strategy, and Allocate resources

Module V: Lesson 1-2

Take a few moments to answer the questions below.

I. An EOC should only be activated during an emergency response

- True
- **False**

II. What do you understand by Span of Control

Span of control pertains to the number of individuals one supervisor can effectively manage. Maintaining an effective span of control is particularly important on incidents where safety and accountability have top priority. In IRS, the span of control for any supervisor falls within a range of 3 to 7. If a supervisor has fewer than three people reporting, or more than seven, some adjustment to the organization should be considered. The rule of thumb for span of control in IRS is one supervisor to five subordinates.

III. During a response to an emergency, joint or unified management requires other agencies to give up their responsibilities and accountabilities?

- True
- **False**

IV. In IRS, the optimal span of control for staff supervision is 1-5.

- **True**
- False

Take a few moments to answer the questions below.

I. List out any 4 functions of Airport Health Organizations (APHOs) and Land Port Health Organizations (LPHOs?

The major functions of APHOs and LPHOs are:

- **Isolation and Quarantine work: The health screening of international passengers.**
- **Disinfection, disinsection, and deratting of aircraft.**
- **Supervision of sanitation, drinking water supply, anti-mosquito, and anti- rodent work.**
- **Administration of yellow fever vaccine and issue of the yellow fever vaccination certificate at identified yellow fever vaccination centres.**

II. What stands for PHECP regarding Points of Entry preparedness and response:

- Public Health Emergency Curriculum Plan
- Popular Hospital Emergency Customized plan
- **Public Health Emergency Contingency Plan**
- Public Health Emergency Customized Plan

III. PHECP be developed and maintained:

- **At a designated PoE for responding to Public Health Emergency of International Concern (PHEIC)**
- In a country of epidemics and other health issues
- Only at airports for biological disasters only
- Only at Seaports for biological and chemical disasters only

Annexure-II: Glossary of Terms *

Action plan	Often called an incident action plan, this is a statement of intent that is specific to an incident or event. It details the response strategies, objectives, resources to be applied and tactical actions to be taken (see plans).
Activation level	A level of readiness or emergency response describing an EOC's activities in response to predetermined criteria related to the severity of an incident.
Administration	The response management function that attends to accounting, budgeting, time- and record-keeping, payments and disbursements, and procurement contracting. Commonly also identified as finance and administration.
After Action Report orReview (AAR)	After an activation, operation, or exercise has been completed, a process involving a structured facilitated discussion to review what should have happened, what actually happened, and why.
All-hazards	An approach to the management of the entire spectrum of emergency risks and events based on the recognition that there are common elements in the management of these risks, including in the responses to virtually all emergencies, and that by standardizing a management system to address the common elements, greater capacity is generated along with specific measures to address the unique characteristics of each event.
Assisting agency	An agency or organization providing personnel, services, or other resources to the agency with lead responsibility for incident management.
Business continuity plan	A document that describes how an organization will maintain and restore critical operational functions and services to a predetermined acceptable level in the event of an occurrence that disrupts its operational capabilities. The focus is not on the nature of the occurrence but on recovering from the damage to the organization. Often called a continuity of operations plan, particularly for government agencies.
Capacity	A combination of all the strengths, attributes, and resources available within an organization, jurisdiction, society, or community can contribute to managing and reducing the level of risk and strengthening resilience. Capacity can include infrastructure and physical means, institutions, social coping abilities, or economic assets as well as human knowledge, skills, and collective attributes such as social relationships, leadership, and management capability.
Capability	Possessing the demonstrable ability to perform a particular task.
Chain of command	A series of command, control, executive, or management positions in a hierarchical order of authority.
Cold debrief, cold wash	A debriefing session is held after a period of time has passed following an exercise or incident, in order to discuss, with the benefit of hindsight, any observations and issues that may have been overlooked during a hot wash. See hot wash.
Command	The act of managing, directing, ordering, or controlling by virtue of explicit statutory, regulatory, or delegated authority. The common short name for 'incident command', involving making decisions, implementing plans to manage an incident, and controlling its effects.
Command post	A form of the site-level emergency operations centre, which may be mobile and assembled as needed by the agency or agencies responding to an incident.
Command and control	Aspects of a management system that provide for vertical authority and accountability (a 'chain of command') and control of resources such as staff and assets.
Common operating picture	A single, continuously updated overview of an incident compiled throughout its life cycle from data shared between integrated systems for communication, information management, and intelligence and information sharing. A common operating picture is available to all EOC personnel, creating uniform situational awareness.

Communications, technical/internal	The processes, protocols, and content of event management information are exchanged vertically and horizontally within an incident or event management organization.
Complex emergency	A disaster complicated by civil violence, government instability, macroeconomic collapse, population migration, elusive political solutions, etc., in which any emergency response has to be conducted in a difficult political and security environment, potentially involving a multi-sectoral, international response that goes beyond the mandate or capacity of any single agency.
Comprehensive emergency (risk) management programme	A corporate or government programme that commits resources to a range of measures to implement prevention and mitigation, preparedness, response, and recovery (also disaster (risk) management programme). Typically, this programme includes the full range of capacities for managing risks associated with emergencies and disasters.
Comprehensive (progressive) exercise programme	A training and exercise programme consisting of a progression of increasingly complex exercises designed to increase understanding of, practice, and evaluate different emergency management capabilities. Five general types of exercises comprise a comprehensive programme: orientations; drills; table-top exercises (TTXs); functional exercises; and full-scale exercises.
Concept of operations (CONOPS)	A section or statement in an agency emergency plan or EOC plan that identifies policies, roles, and responsibilities and how the structural or functional elements of the organization will work together to produce a coherent management response.
Consequence management	The coordination and implementation of measures and activities to alleviate the damage, loss, hardship, and suffering caused by an emergency. The term intends to be distinct from crisis management—i.e. it distinguishes between dealing with the immediate emergency event (e.g. putting out the fire) and dealing with the consequential effects or aftermath of the event (e.g. treating burn victims). Some examples of consequence management in the health sector include mass casualty management; psychosocial services; communicable disease control; and environmental health measures. Consequence management also includes measures to restore essential government services, protect public health and provide emergency relief to affected governments, businesses, and populations.
Context	As applied to emergency (risk) management, context is described by a number of factors related to the setting, circumstances, and environment of risks and events. These include the cultural, social, political, legal, regulatory, financial, technological, economic, natural, and competitive environment—whether local, national, regional, or international—and those factors related to the governance, organizational structure, roles, accountabilities, policies, objectives, and strategies that are in place to achieve those objectives. They also include the capabilities of and relationships between the internal and external actors and stakeholders.
Contingency plan	A plan to deal with particular aspects of a specific threat that is different from other threats. For example: while the general management of emergencies is similar for most, and therefore efficiently addressed by a generic (all hazards) approach, the specific re-sources and actions that would be required to address a communicable disease outbreak are different from those used to respond to an earthquake. Each would require a different contingency plan (see plans).
Control	The application of authority, combined with the capability to manage resources, in order to achieve defined objectives. Refers to the overall direction of the activities, agencies or individuals concerned and operates horizontally across all agencies/organizations, functions, and individuals.
Cooperating agency	An agency supplying assistance other than direct operational or support functions or resources to the incident management effort.
Coordination	Management processes to ensure integration (unity) of effort. Coordination relates primarily to resources and operates vertically (within an organization) as a function of the authority to command, and horizontally (across organizations) as a function of the authority to control.

Coping capacity	Coping capacity is the ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters. The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during disasters or adverse conditions.
Credentialing	A process that results in authentication and verification of the certificates, licenses, identity, and competence of personnel, including designated incident managers, emergency responders, and professional, technical, or managerial personnel.
Debrief/debriefing	A critical examination of a completed operation or exercise in order to evaluate actions.
Disaster	A type of event which causes serious disruption to the functioning of a community or a society due to hazards interacting with conditions of vulnerability, exposure, and insufficient capacity to reduce risks or cope with consequences, leading to widespread human, material, economic and environmental losses, and impacts. The impact of a disaster is often widespread and can last for a long period of time. The impact may test or exceed the capacity of a community or society to cope using its own resources and therefore may require assistance from external sources, which could include neighbouring jurisdictions or national or international sources. Consequences may include injuries, disease, and other negative effects on human physical, mental and social wellbeing, together with damage to property, loss of services, and environmental degradation.
Disaster Management Cycle	A collective term encompassing all aspects of planning for and responding to disasters, including both pre (prevention, mitigation and preparedness) and post disaster (response, search and rescue, relief, reconstruction and rehabilitation) activities. It may refer to the management of both the risks and consequences of disasters.
Discussion-based exercise	An exercise that consists of a facilitated discussion that allows players to familiarize themselves with response plans, policies, and procedures, and to explore their application in specific emergency scenarios. Discussion-based exercises include seminars, work-shops, tabletop exercises, and games.
Drill	A limited form of operational training exercise, the purpose of which is to establish and maintain specific response behaviours and procedural skills and evaluate how the EOC facility supports the procedures.
Emergency	A type of event or imminent threat that produces or has the potential to produce a range of consequences, and which requires coordinated action, usually urgent and often non-routine. Emergencies have effects that may be considered on a continuum from local emergencies with limited consequences to wide-area disasters with catastrophic consequences. Incidents or events are often referred to as emergencies, with the terms used interchangeably, but not all incidents or events are emergencies.
Emergency coordination centre	A term used to describe a type of EOC that has no direct, tactical, or operational function, but which serves as a point of control and coordination for the strategic allocation of re-sources and management of policy issues.
Emergency (risk) management	Also referred to as disaster (risk) management. Emergency (risk) management is the application of policies, processes, and actions to prevent new risks, reduce existing risks and manage residual risk. It includes the organized preparedness for and response to risk events and post-event support for recovery, rehabilitation, and reconstruction of affected communities and societies.
Emergency (risk) management agency or organization	An organization, often a government agency, is specifically mandated to provide a single point of accountability for the coordination of multi-sectoral and inter-agency emergency activities, including risk assessment, prevention, mitigation, preparedness, response, and recovery activities within a particular area. Also called a disaster (risk) management organization.
Emergency response plan (ERP)	A document that describes how an agency or organization will manage its responses to emergencies of various types by providing a description of the objectives, policy, and concept of operations for the response to an emergency; and the structure,

	authorities, and responsibilities for a systematic, coordinated and effective response. In this context, emergency plans are agency- or jurisdiction-specific and detail the resources, capacities, and capabilities that the agency or organization will employ in its response (see plans). Also referred to as an emergency or operations plan.
Emergency operations centre (EOC)	A place within which, in the context of an emergency, personnel responsible for planning, coordinating, organizing, acquiring, and allocating resources and providing direction and control can focus these activities on responding to the emergency. An EOC is a generic concept, embracing a range of emergency management facilities from an on-scene incident command post at an emergency site to a national emergency coordination centre providing strategic direction and resources to multiple jurisdictions and agencies in a wide-area disaster. An EOC usually sits between these extremes and provides strategic policy, logistical and operational support to site-level responders and response agencies—see also public health emergency operations centre (PHEOC).
EOC plan	A document that describes the structure, functions, and standard operating procedures for operating an EOC. It is the primary resource manual for EOC staff, containing samples of all necessary forms, role descriptions, concepts of operations, and standard operating procedures.
Event	An emergency incident or occurrence. 'Event' and 'incident' are often used interchangeably. An event may be insignificant or could be a significant occurrence, planned or unplanned (e.g. extreme weather event or mass gathering), that may impact the safety and security of communities. Under the International Health Regulations (2005) (Article 1) an event is defined as a manifestation of a disease or an occurrence that creates a potential for disease' (with particular reference to public health events of international concern, or PHEIC).
Exercise	A form of practice, training, and evaluation of capabilities involving the description or simulation of an emergency, to which a described or simulated response is made based on agency emergency plans or contingency plans, and an EOC plan. Exercises can be used for validating policies, plans, procedures, training, equipment, and inter-organizational agreements; clarifying and training personnel in roles and responsibilities; improving inter-organizational coordination and communications; identifying gaps in resources; improving individual performance and identifying opportunities for improvement, and as a controlled opportunity to practice improvisation.
Full-scale exercise	An operational exercise that focuses on operational capabilities by actually deploying agency resources in real-time, in a simulated setting that is as realistic as possible, without putting public and staff safety at risk. Full-scale exercises are the most complex and costly form of training and evaluation.
Function	One of the five major activities in the incident command system (which are, respectively, command, operations, planning, logistics, and finance/administration). The term 'function' is also used when describing the activity involved (e.g. 'the planning function'). Other functions, such as intelligence/investigations, may be established if it is required in order to meet incident management needs.
Functional exercise	A fully simulated complex operational exercise (involving no deployment of resources) for evaluation and training, which focuses on policies, roles, responsibilities, and management capabilities within an emergency response management system. A functional exercise will usually involve challenging time constraints and occur within the EOC or coordination centre so that the available tools and technologies can be used and evaluated.
Geographic Information Systems (GIS)	A computerized database for the capture, storage, analysis, and display of geographically defined information. An organized collection of computer hardware, software, geographical data, and personnel designed efficiently to capture, store, update, manipulate, analyze and display all forms of geographically referenced information. It is first and foremost an information system with a geographical

	variable, which enables users easily to process, visualize and analyze data or information spatially. Also geospatial information mapping.
Hazard	Hazard- A rare extreme natural or human made event that threatens to adversely affect human life, property or activity to the extent of causing disaster. A hazard is a natural or man-made phenomenon which may cause physical damage, economic losses, or threaten human life and well being if it occurs in an area of human settlement, agricultural, or industrial activity. Hazard is an event or occurrence that has the potential for causing injuries to life and damaging property and the environment. Examples of natural hazards are typhoons, tsunamis, earthquake and volcanic eruption, which are exclusively of natural origin. Landslides, floods, drought, fires are social –natural hazard since their causes are both natural and management-made. More and more, the distinction between natural and management-made hazards is becoming harder to delineate.
Health communication	Activities for informing, influencing, and motivating individual, institutional, and public audiences about important health issues.
Health emergency	A type of event or imminent threat that produces or has the potential to produce a range of health consequences, and which requires coordinated action, usually urgent and often non-routine. A health emergency may pose a substantial risk of significant morbidity or mortality in a community.
Hot site	An alternate EOC site that can be either fixed or mobile and which is fully equipped for a swift resumption of the delivery of critical services affected by disruption.
Hot wash/hot debrief	A debriefing session is held immediately after an exercise or incident to identify the strengths and weaknesses of plans, policies, and procedures. See also cold wash.
Incident	An actual or imminent occurrence of a natural or human-induced event (see event) that requires a response to prevent or minimize illness, loss of life, or damage to property or the environment, and to reduce economic and social losses.
Incident action plan	An oral or written plan outlining objectives related to the strategy for managing an incident. It may include the identification of operational resources, assignments, attachments that provide direction, and important information for the management of the incident during one or more operational periods. Also event action plan.
Incident command (function)	The lead managerial position in an EOC with responsibility for setting the incident objectives, strategies, and priorities, and which has overall responsibility for incident management.
Incident management system (IMS)	An emergency management structure and set of protocols that provide an approach to guiding government agencies, the private sector, non-governmental organizations, and other actors to work in a coordinated manner primarily to respond to and mitigate the effects of all types of emergencies. The incident management system may also be utilized to support other aspects of emergency management, including preparedness and recovery. Also incident command system.
Information and communications technology (ICT)	A system of hardware, software, and networks that move information, and the personnel required to design, implement and support the system.
Information Management	A set of processes and procedures to collect, store, analyze, and distribute data and information to enable EOC functions.
Information system	An integral set of computational components to ensure availability, accessibility, quality, timeliness, and usefulness of data and information for EOC functions. The components include resources (coordination and leadership, policies, financial and human resources, infrastructure); data requirement and information needs; data sources; data management (data storage, data quality, data processing, and compilation); information products; and information use.

Interoperability	The ability of two or more systems or components to exchange data using common standards.
Joint management	Commonly referred to as unified management or unified command, this is a form of EOC management where agencies with complementary jurisdictions, or mandates in an emergency, work together to share the control and direction of the EOC, with the agreement that one manager will take the lead for the duration of the emergency event or for an agreed operational period.
Jurisdiction	An organization (level of government or designated agency) with the authority and responsibility to provide particular functions and services within a defined area.
Leadership	The process of engaging others and fostering constructive processes for working together, and sustaining collaborative interaction to guide activities and achieve objectives.
Lessons learned	Identified issues for which remedial actions may be implemented, in order to improve performance.
Liaison	A process of linking and coordinating joint planning and efforts of agencies that are external to the jurisdiction responsible for the emergency response. Such agencies may have either a policy or an operational interest in the response and may participate through a liaison officer either by assisting in the response (assigning tactical resources to the event) or cooperating (providing external support). Liaison officers are considered part of the command/management staff and report to the incident manager/incident commander.
Location	A field or site-level EOC (command post) is commonly located near where tactical operations (direct application of resources) need to occur. The facility will often be the responders' normal office or field workspace or maybe a mobile unit that moves to new sites as needed. For many public health emergencies, it is best located near the geographical perimeter of the event, with good transportation access, rather than in the middle.
Logistics	The aspect of emergency (risk) management that deals with the procurement, distribution, maintenance, replacement, and repatriation of material and human resources, including the provision of support infrastructure and services to response staff.
Management by objectives	A management approach that entails: establishing overall incident objectives; developing strategies based on the objectives; developing and assigning appropriate resources; establishing specific, measurable results or tasks for various incident response activities; directing efforts to achieve the results; and evaluating results to measure achievement and facilitate corrective action.
Minimum dataset	A set of data elements developed and used for essential EOC functions. The EOC minimum dataset consists of: domains; associated indicators (data and information needs); definitions for each indicator to provide standardization; possible sources of data for each indicator; a rationale for why each indicator is important; and additional supporting information.
Mitigation	Activities designed to reduce or limit risks to persons or property or to lessen the actual or potential effects or consequences of an incident. Mitigation measures may be implemented prior to, during, or after an incident. Mitigation involves ongoing actions to reduce hazards and vulnerability and exposure to hazards and to increase capacities.
Mobile command post	A vehicle, employed by response agencies, designed and equipped to support tactical level coordination and control of personnel and agencies involved in responding to an emergency at field or site level.
Modularity	An organizational characteristic where components are standardized to support flexibility in building or adjusting the organization to address changing requirements.

Objectives	Results or outcomes of specific activities to be achieved over a stated time. Objectives are specific, measurable, and realistic statements of intention.
Off-site EOC	Established to support responses to larger, often multi-site emergencies that entail a more complex set of considerations. Proximity to decision-makers, partners, stakeholders, donors, and humanitarian agencies is a significant consideration for the establishment of such an EOC. Commonly, it will reside within the normal office infrastructure of a responsible agency. To the greatest extent possible, if the EOC is providing multi-site area coordination, it is best located separately from the incident.
Objectives	The time required to achieve a particular set of objectives.
Operations(EOC function)	The function that establishes tactics and directs operational resources to achieve incident response objectives.
Operations-based exercises	Exercises characterized by fully simulated or actual responses with the use of equipment and resources and commitment of personnel. Operations-based exercises are used to validate capabilities, plans, policies, agreements, and procedures. They include drills, functional exercises, and full-scale exercises.
Orientation	A discussion-based process that is the simplest form of training and evaluation exercise, designed to acquaint users of an emergency plan or emergency management facility with the features of the plan or facility and how they should be used. An orientation uses low levels of simulation to focus on issues of coordination and assignment of responsibilities.
Personal protective equipment (PPE)	Protective clothing (gowns, gloves, boots, etc.) and equipment (masks, shields, respirators, earplugs, etc.) that are necessary to shield or isolate a person from biological, chemical, physical, sonic and thermal exposure.
Public health emergency operations centre (EOC) (PHEOC)	An emergency operations centre specializing in the command, control, and coordination requirements of responding to emergencies involving health consequences and threats to public health.
Plans	A generic reference to documents designed to identify, at various levels, responsibility for a range of activities and intended objectives, strategies, and tactics. The purpose of plans is to maximize effectiveness and minimize response time to events, and to standardize routine activities associated with response and management so that additional capacities can be focused on addressing the unique characteristics of each event. Plans are specific to their intended users. See also contingency plan, EOC plan, and support plan.
Planning (EOC function)	In an EOC, the planning function is responsible for collecting, processing, analyzing, and evaluating information to predict the evolution of the emergency, and identifying strategies and objectives for addressing it. This function is also responsible for the preparation and dissemination of status reports and documentation of the incident response. Generally, planning is comprised of the intellectual and interpersonal processes of designing, developing, testing, and evolving activities necessary to achieve objectives. An inclusive, comprehensive planning process usually results in the value of the product (the plan) being less important than the value of the planning process, which builds on the synergy of bringing together people and agencies with common interests to analyze and solve problems cooperatively.
Preparedness	The knowledge and capacities of governments, response and recovery agencies, communities, and individuals allow them effectively to anticipate, respond to, and recover from the impacts of a wide range of likely, imminent, or current events. A state of preparedness is the product of a combination of planning, allocation of resources, training, exercising, and organizing to build, sustain, and improve operational capabilities based on risk assessments.

Prevention	Activities and measures taken, based on risk assessments, to avoid existing and new risks. Prevention and mitigation are often used interchangeably, as they aim to reduce the probability or consequences of disasters, and communities' vulnerability thereto. Prevention measures can also be implemented in response and recovery to stop specific consequences from occurring.
Public health emergency	An occurrence, or imminent threat, of an illness or health condition that poses a substantial risk of a significant number of human fatalities, injuries, or permanent or long-term disability. Public health emergencies can result from a wide range of hazards and complex emergencies
Public health emergency of international concern (PHEIC) (IHR definition)	An extraordinary event which is determined, as provided in the [International Health] Regulations: (i) to constitute a public health risk to other States through the international spread of disease and (ii) to potentially require a coordinated international response.
Public Communication	The discipline and process of providing public audiences with information that creates awareness and knowledge so that people can adjust their personal understanding of risks, and their reactions, decisions, and responses to threats and crisis situations.
Redundancy	Having secondary or backup human and physical resource capacity in case of primary resource capacity is impaired or becomes unavailable for any reason.
Risk	The combination of the probability of an event and its consequences, which results from interactions between natural and human-induced hazards, vulnerability, exposure, and capacity.
Risk assessment	The process of determining those risks to be prioritized for risk management by the combination of risk identification, risk analysis, and evaluation of the level of risk against predetermined standards, targets, risks, or other criteria. Risk assessments include a review of the technical characteristics of hazards, analysis of exposures and vulnerability, and evaluation of the effectiveness of prevailing coping capacities in respect of likely risk scenarios.
Risk Communication	Public communication throughout the preparedness, response, and recovery phases of a serious public health event to encourage informed decision making, positive behaviour change, and the maintenance of trust.
Risk management	Coordinated activities to direct and control an organization or entity with regard to risk. The systematic approach and practice of managing uncertainty to minimize potential harm and loss (of life, assets and resources, injury, illness, and other adverse effects). Activities include conducting risk assessments, implementing risk treatment measures, and evaluation, monitoring, and review.
Scalability	The capability to expand or reduce in size in order to adjust capacity and capability by adding or deactivating organizational modules to adapt to changes in demand without the need for reconfiguration of a basic structure.
Sector	A division or collective aspect of a geographical area, economy, or society.
Seminar	A guided informal discussion led by a presenter/seminar leader, without time constraints, in order to orient personnel and partners to plans and procedures and enlist their participation in refining a product.
Site-level	The actual location of the hands-on, tactical-level response to an emergency. When site-level emergency response capacities are overwhelmed, the role of a site-support (operational level) EOC is to provide assistance with logistics (resources) and strategy (direction and coordination).
Situation report (SITREP or SitRep)	A routinely produced report that provides current information about emergency response and immediate and future response actions, an analysis of the impact of the emergency, and identification of related management issues.

Situational awareness	Being aware of and attentive to what is happening in a given environment at a particular time, with particular emphasis on the effect of changes in the environment; in effect, knowing how an incident or event is evolving.
Standard operating procedure/s (SOP/s)	A set of instructions or directions detailing what actions should be taken by EOC personnel—as well as how, when, by whom, and why—for specific events or tasks.
Steering committee	An oversight or user committee, responsible for providing sponsorship, leadership, policy, and funding support to a working group assigned to develop an emergency operations centre.
Strategic	The defining characteristic of something 'strategic' is that it deals with relatively long-term, high-level, big picture concepts in order to integrate an organization's major goals, policies, and action sequences into a cohesive whole. It may also have a normative or standard-setting component.
Supporting agency	An agency that provides essential services, personnel, or material to support or assist a lead agency (the supported agency). Supporting agencies may support either by assisting (i.e. contributing their own operational resources) or cooperating (providing indirect assistance).
Surge capacity	The ability to draw on additional resources to sustain operations and increase capacity, usually for emergency response, as required.
Table-top exercise (TTX)	A discussion-based form of training or evaluation exercise where all the personnel assigned to an EOC gathers informally, without the pressure of tight time constraints, to examine hypothetical emergency situations. They discuss intended responses and identify and solve problems based on the EOC operational plan and the agencies' emergency plans.
Tactical	Those activities, resources, and maneuvers that are directly applied at a task level in order to achieve goals. Compare with strategic. The tactical level is the level (below strategic level and above operational level) at which the response to an emergency is managed.
Technical Communications	Communications related to the protocols, procedures, and methods used to pass critical information among key participants during the management of an emergency.
Unified management/ command	A team approach to the management of complex, multi-agency or multi-jurisdictional emergencies that allows all agencies with complementary geographical or functional responsibilities in the response to establish a common set of objectives, strategies, and operations. A lead agency is established based on agreement on the primary problem being addressed; other agencies share responsibility and participate fully in decision making. See also joint management.
Vulnerability	Vulnerability is a set of prevailing or consequential conditions that adversely affect people's ability prevent, mitigate, prepare for and respond to hazardous events. These long-term factors, weaknesses or constraints affect a household or community's ability (or inability) also to absorb losses after disaster or to recover from the damage.

*Source: WHO. Annex 1 Glossary of terms and abbreviations. Framework for a Public Health Emergency Operations Centre. Available at: https://apps.who.int/iris/rest/bitstreams/874073/retrieve accessed on 05 July 2021

Annexure-III: Emergency Operations Plan (EOP)

Annexure-III(a)

Deciding on an EOP Format

Organization: Do the EOP section and subsection titles help users find what they need, or users must shift through information that is not relevant? Can individual plan components be revised without forcing a substantial rewrite of the entire EOP?

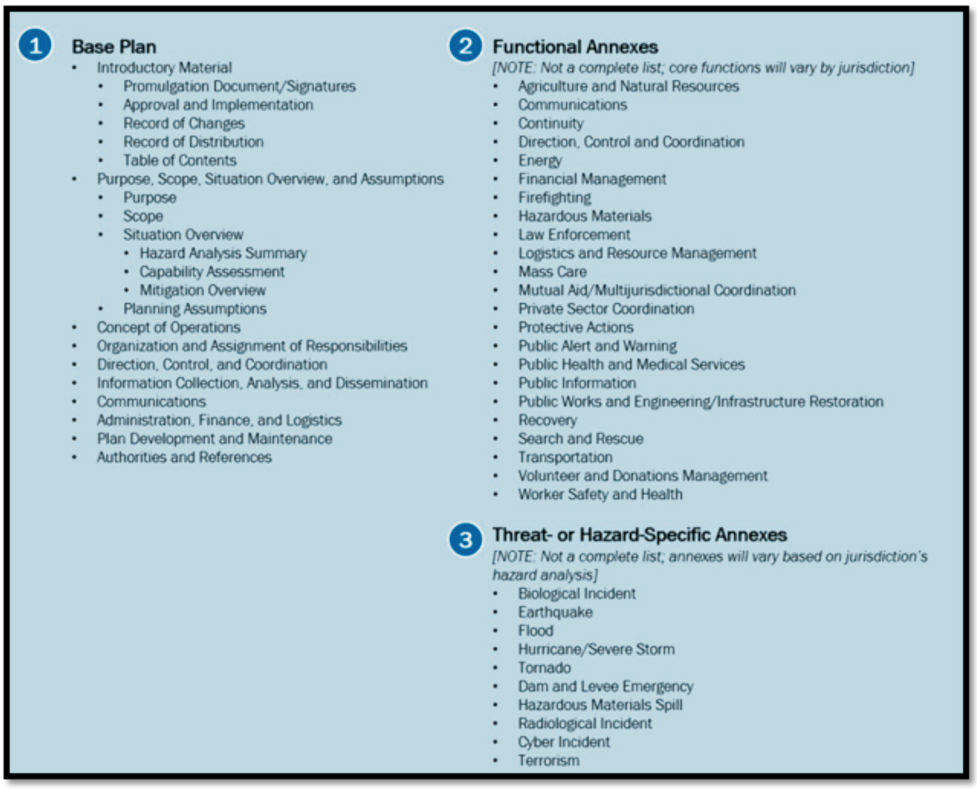
Progression: Does each element of the EOP section seem to follow from the previous one, or are some items strikingly out of place? Can readers grasp the rationale for the sequence and scan for the information they need?

Consistency: Does each section of the EOP use the same logical progression of elements, or readers must reorient themselves to each section?

Adaptability: Does the EOP's of the organization make its information easy to use during unanticipated situations?

Compatibility: Does the EOP format promote coordination with other jurisdictions, including the national and/or state government?

Annexure III (b): Example Function-Focused EOP Format



Annexure III (c): Example Agency-/Department-Focused EOP Format



Annexure III (d): Additional Types of Plans

Administrative plans describe policies and procedures to support a governmental endeavor.

Typically, they primarily deal with internal processes. Examples include plans for financial management, personnel management, records review and labor relations activities. Such plans are not typically part of EOPs. However, planners should reference administrative plans in the EOP if they apply during emergencies. Planners should make similar references in the EOP for exceptions to normal administrative plans permitted during emergencies.

Comprehensive Emergency Management Plans (CEMPs) are plans that some jurisdictions develop and that vary in terms of purpose and content. In some cases, the CEMP is the jurisdiction's EOP. In many jurisdictions, however, the CEMP represents broader guidance describing the jurisdiction's overall emergency management program, including preparedness, mitigation, response and recovery. Some jurisdictions have laws that characterize the plan as a CEMP or EOP, prescribe its contents and influence other plan attributes.

Continuity Plans address how the whole community provides critical services and conducts essential functions when normal operations are disrupted. Both of the following types of continuity plans should complement EOPs, and EOPs should address how continuity plans enable the continuation of vital services, including emergency response activities, when normal facilities, personnel or other resources are unavailable.

Continuity of Operations (COOP) Plans outline essential functions and services to perform and deliver, and how to do so, if an incident disrupts normal operations. They also address the timely

resumption of normal operations once the emergency has ended. COOP plans address the continued performance and delivery of core capabilities and critical operations during any potential incident.

Continuity of Government (COG) is an outcome of continuity planning and the continuity capabilities that support it. COG planning efforts and COG plans prepare jurisdictions to preserve or reconstitute statutory, constitutional, legislative and administrative responsibilities and authorities at all levels of government when an incident affects government organizations that hold roles in emergency response and recovery.

Department-/agency-based operational plans provide details on how an agency or department carries out assignments identified in EOPs. While EOPs do not normally include proc language, department/agency-based plans often do contain procedural guidance.

EOC action plans serve a purpose similar to incident action plans (IAPs): to focus EOC staff on EOC objectives and non routine EOC tasks to be completed during a given EOC operational period (typically a shift or a day).

Hazard mitigation plans outline a jurisdiction's strategy to reduce the loss of life and property by lessening the impact of the hazards it faces. The Disaster Mitigation Act of 2000 requires jurisdictions seeking certain disaster assistance funding to have approved hazard mitigation plans. Mitigation planning is often a long-term effort and may be part of or tied to the jurisdiction's strategic development plan or similar documents. Mitigation planning committees may differ from operational planning teams in that they include zoning boards, floodplain managers and individuals with long-term cultural or economic interests. However, many partners support both types of planning, and plans for mitigating hazards are relevant to an EOP, since both originate from a hazard-based analysis and share similar requirements.

Incident Action Plans (IAPs) are iterative operational plans that incident management teams develop prior to each operational period (typically every 12 or 24 hours) during incident response. IAPs list the objectives established by the incident commander or unified command and specify tactics and planned resource utilization during the operational period. Effective EOPs guide and facilitate the development of IAPs during the operational periods immediately following an incident. As situational awareness improves over the hours and days following the incident, planners increasingly rely on ground truth to guide incident planning and operations.

Joint operational plans or regional coordination plans typically involve multiple levels of government to address a specific incident or a special event. Standing plans should be an annex to the related EOPs, while special events plans should be standalone supplements based on the information contained within the related EOPs.

Recovery plans developed prior to a disaster help jurisdictions identify needs, develop options, implement solutions, direct recovery activities and expedite a unified recovery effort. Pre-incident planning performed in conjunction with community development planning helps establish recovery priorities, incorporate mitigation strategies in the wake of an incident and identify options and changes to consider or implement after an incident. Post-incident community recovery planning integrates the range of complex decisions in the context of the

incident and works as the foundation for allocating resources. While the focus of recovery planning differs from EOPs, many of the same partners support both activities. These partners are able to apply a broad perspective that benefits both initiatives

Annexure-IV: Categories of Natural Hazards

S.N.	Family	Main Event	Short Description/ Secondary Disaster
1.	Geophysical	Earthquake/ Mass movement of earth materials	Landslide following earthquake; Urban fires triggered by earthquakes; Liquefaction - the transformation of (partially) water-saturated soil from a solid state to a liquid state caused by an earthquake Mass movement of earth materials, usually down slopes Surface displacement of earthen materials due to ground shaking triggered by earthquakes
		Volcano	Surface displacement of earthen materials due to ground shaking triggered by volcanic eruptions A type of geological event near an opening/vent in the Earth's surface including volcanic eruptions of lava, ash, hot vapour, gas, and pyroclastic material Ash fall; Lahar - Hot or cold mixture of earthen material owing on the slope of a volcano either during or between volcanic eruptions; Lava Flow Pyroclastic Flow - Extremely hot gases, ash, and other materials of more than 1,000 degrees Celsius that rapidly ow down the ank of a volcano (more than 700 km/h) during an eruption
		Tsunami	Tsunamis are difficult to categorize they are essentially an oceanic process that is manifested as a coastal water-related hazard. A series of waves (with long wavelengths when traveling across the deep ocean) that are generated by a displacement of massive amounts of water through underwater earthquakes, volcanic eruptions or landslides. Tsunami waves travel at very high speed across the ocean but as they begin to reach shallow water they slow down, and the wave grows steeper.
			Avalanche, a large mass of loosened earth material, snow, or ice that slides, ows or falls rapidly down a mountainside under the force of gravity Coastal Erosion - The temporary or permanent loss of sediments or landmass in coastal margins due to the action of waves, winds, tides, or anthropogenic activities

S.N.	Family	Main Event	Short Description/ Secondary Disaster
2.	Hydrological	Flood Landslides Wave Action	Coastal ood - Higher-th an-normal water levels along the coast caused by tidal changes or thunderstorms that result in ooding, which can last from days to weeks Debris Flow, Mud Flow, Rock Fall - Types of landslides that occur when heavy rain or rapid snow/ice melt send large amounts of vegetation, mud, or rock downslope by gravitational forces Flash Flood Hydrological - Heavy or excessive rainfall in a short period of time that produce immediate runo, creating ooding conditions within minutes or a few hours during or after the rainfall Flood Hydrological - A general term for the overow of water from a stream channel onto normally dry land in the oodplain (riverine ooding), higher-than normal levels along the coast and in lakes or reservoirs (coastal ooding) as well as ponding of water at or near the point where the rain fell (ash oods) Wave Action: Wind-generated surface waves that can occur on the surface of any open body of water such as oceans, rivers and lakes, etc. The size of the wave depends on the strength of the wind and the travelled distance (fetch).
3.	Meteorological	Hazard caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that may last for minutes to days	Cyclone, Storm Surge, Tornado, Convective Storm, Extra-tropical Storm, Wind Cold Wave, Derecho Extreme Temperature, Fog, Frost, Freeze, Hail, Heat wave Lightning, Heavy rain Sandstorm, Dust-storm Snow, Ice, Winter Storm, Blizzard
4.	Climatological	Unusual, extreme weather conditions related to long-lived, meso- to macro- scale atmospheric processes ranging from intra-seasonal to multi-decadal (long-term) climate variability	Drought Extreme hot/cold conditions Forest/Wildfire Fires Glacial Lake Outburst Flood (GLOF) Subsidence
5.	Biological	Exposure to germs and toxic substances	Epidemics: viral, bacterial, parasitic, fungal, or prion infections Insect infestations Animal stampedes

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ISBN No.: 978-81-957965-8-8