



CURRENT AFFAIRS



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HIROSHIMA AI PROCESS (HAP)

This article covers "Daily Current Affairs" and the topic details "Hiroshima AI Process (HAP)". The topic "Hiroshima AI Process (HAP)" has relevance in the Science and Technology section for the UPSC CSE exam.

Relevance of the topic "India-UAE CEPA":

For Prelims:

What is Hiroshima AI Process (HAP)?

For Mains:

GS 3: Science and Technology

What is the need for regulation of AI?

What are the components of the Hiroshima AI Process?

Way forward

Why in the news?

The G-7 Summit that took place in Hiroshima on May 19-21, 2023 was a really important event. World leaders from the G-7 countries came together to talk about Artificial Intelligence (AI) and how it should be regulated. During the summit, the leaders started something called the Hiroshima AI Process (HAP).

What is the need for regulation of AI?

The leaders realised that AI is a powerful technology that can have a big impact on our lives, so they wanted to make sure it is used in a responsible and ethical way. The need for regulation of AI arises out of the following factors:

- Ethical concerns: AI should be developed and used in a way that respects human rights and fundamental values.
- Safety and accountability: Regulations are needed to ensure the transparency, explainability, and reliability of AI systems.
- Fairness and non-discrimination: Regulations can address biases in AI algorithms and promote inclusive outcomes.
- Data protection and privacy: Clear guidelines on data collection, storage, and usage are necessary to safeguard privacy.
- Economic impact and job displacement: Regulations can mitigate job displacement and promote retraining programs.
- National security and misuse: Regulations can prevent the misuse of AI technologies for harmful purposes.
- International coordination and standards: Regulations facilitate global cooperation and harmonisation of AI standards.

What are the components of the Hiroshima AI Process?

1. Open Dialogue: Encouraging inclusive discussions among stakeholders.
2. Best Practice Sharing: Sharing successful approaches and experiences.
3. International Standards: Establishing common guidelines for AI governance.
4. Policy Recommendations: Formulating practical policy suggestions.
5. Ethical Guidelines: Addressing transparency, fairness, accountability, and privacy.
6. Capacity Building: Promoting education and training on AI-related topics.
7. Collaboration and Partnerships: Fostering cooperation among governments, academia, industry, and civil society.

What are the challenges in the process?

1. Divergent views among the G-7 countries.
2. The concerns of other country groups need to be taken as the words are more than the G-7. It leaves big players like India and China.
3. Each country as of today is following its own way of working and not a uniform model.

The G-7 Summit in Hiroshima and the initiation of the Hiroshima AI Process (HAP) are significant steps in the global efforts to regulate AI. The leaders understand the potential of AI and want to make sure it benefits everyone while minimising risks. They hope that through the HAP, they can create a framework for responsible and sustainable AI development that respects our values and promotes the well-being of individuals and societies.

Source:

<https://www.thehindu.com/sci-tech/technology/hiroshima-ai-process-g7-explained/article66959829.ece>

PRELIMS QUESTIONS

Q.1 Which significant event took place in Hiroshima in May 2023?

1. The signing of a major trade agreement
2. The hosting of the G-7 Summit
3. The inauguration of a new international airport
4. The celebration of a local cultural festival

Select the correct answer from the code given below:

1. Option 1
2. Option 2
3. Option 3
4. Option 4

Answer: (b)

Q.2 Arrange the following islands of Japan as they are located north to south on the world map:

1. Honshu
2. Hokkaido
3. Kyushu
4. Shikoku

Select the correct answer from the code given below:

1. 1->3->2->4
2. 2->1->4->3
3. 4->3->2->1
4. 3->1->2->4

Answer: (b)

Mains Question

1. The regulation of AI needs a collaborative approach as highlighted in the Hiroshima AI process. Discuss.

Mohit Pratap Singh

FIXED DOSE COMBINATIONS (FDCS)

This article covers "Daily Current Affairs" and the topic details "FDCs". The topic "FDCs" has relevance in the Public Health section of the UPSC CSE exam.

Relevance:

For Prelims:

What are FDCs?

For Mains:

GS 2: Public Health

Benefits of FDCs?

Challenges presented by FDCs?

Why in the news?

Fourteen fixed-dose combination (FDC) medicines found to lack therapeutic relevance have been banned by the Central Government through a gazette notification issued over the weekend.

What are FDCs?

Fixed-dose combinations (FDCs) refer to pharmaceutical products that contain two or more active ingredients in a single dosage form. These ingredients are combined in fixed amounts, meaning the ratios and quantities of the components remain consistent in each dose. FDCs are commonly used in medical practice to simplify medication regimens, improve patient compliance, and enhance treatment efficacy.

- **Combination Therapy:** Fixed-dose combinations are often prescribed when multiple medications are required to manage a particular medical condition. By combining different active ingredients into a single pill or tablet, FDCs offer convenience and streamline treatment.
- **Synergistic Effects:** FDCs may have synergistic effects, where the combined action of the active ingredients produces a greater therapeutic effect than the individual components alone. This can lead to enhanced efficacy, improved symptom control, and better patient outcomes.
- **Rational Combination:** FDCs are carefully formulated based on scientific evidence, clinical trials, and knowledge of the disease process. The selection of active ingredients and their doses is determined by their compatibility, complementary mechanisms of action, and potential for improved therapeutic benefits.

Benefits of FDCs?

- **Simplified Treatment Regimens:** FDCs combine multiple active ingredients into a single dosage form, reducing the number of pills or tablets a patient needs to take. This simplifies the treatment regimen and improves patient compliance, as it is easier to remember and adhere to a single medication schedule.

- **Enhanced Efficacy:** FDCs are often formulated to have synergistic effects, where the combined action of the active ingredients leads to improved therapeutic outcomes. The combination of drugs targeting different aspects of a disease or working through complementary mechanisms can result in enhanced efficacy and better control of symptoms.
- **Reduced Risk of Medication Errors:** When multiple medications are prescribed individually, there is a higher risk of medication errors, such as incorrect dosing or missed doses. FDCs help reduce these risks by providing a pre-determined and fixed dosage of each active ingredient in a single product, minimizing the chances of dosing errors.
- **Cost Savings:** FDCs can be cost-effective compared to the individual medications taken separately. By combining multiple drugs into a single formulation, FDCs may result in lower manufacturing costs, reduced packaging, and potentially lower prices for patients.
- **Convenience and Portability:** FDCs offer convenience and portability, especially for patients who need to take multiple medications throughout the day. With FDCs, patients can carry and manage a single medication pack instead of multiple bottles or blister packs, making it easier to adhere to their prescribed regimen even when away from home.
- **Public Health Impact:** FDCs can play a crucial role in managing public health concerns such as infectious diseases. For example, in the case of tuberculosis or HIV/AIDS, FDCs that combine multiple antiretroviral or antitubercular drugs simplify treatment protocols, improve medication adherence, and reduce the risk of developing drug resistance.

Challenges presented by FDCs?

- **Limited Clinical Evidence:** FDCs may not always have robust clinical evidence supporting their efficacy and safety compared to individual medications. Conducting clinical trials specifically for FDCs can be complex and costly, resulting in a lack of comprehensive data on their effectiveness in certain patient populations or specific medical conditions.
- **Variable Individual Responses:** Individual patients may respond differently to FDCs due to variations in their metabolism, genetic factors, coexisting conditions, or concomitant medications. Predicting and addressing these individual differences can be challenging, as FDCs offer limited flexibility for dose adjustments or component substitutions.
- **Potential for Polypharmacy:** FDCs can contribute to polypharmacy, which refers to the concurrent use of multiple medications. Polypharmacy increases the risk of drug interactions, medication errors, and adverse drug reactions. Prescribers need to carefully evaluate the overall medication regimen and consider the potential impact of adding an FDC to an existing treatment plan.
- **Lack of Tailored Treatment:** FDCs may not accommodate individualized treatment approaches. Patients with specific needs, such as those with multiple comorbidities, geriatric patients, or individuals with organ dysfunction, may require tailored treatment regimens that involve separate medications with adjustable doses.
- **Adverse Effects and Tolerability:** Adverse effects and tolerability issues associated with FDCs can be challenging to manage. If a patient experiences side effects or adverse reactions, it can be difficult to identify the specific component responsible. This can hinder the optimization of treatment and may require discontinuation of the entire combination, even if only one component is causing the problem.
- **Regulatory and Market Access Challenges:** The regulatory approval process for FDCs varies across different countries, and obtaining approvals for new combinations can be time-consuming and complex. Additionally, market access may be limited due to reimbursement policies or formulary restrictions, making certain FDCs inaccessible to patients who could potentially benefit from them.

- **Long-Term Safety Monitoring:** Monitoring the long-term safety profile of FDCs can be challenging, particularly when rare or delayed adverse events are involved. Robust pharmacovigilance systems are essential to detect and evaluate any safety concerns associated with FDCs after they are introduced into the market.

Source:

<https://www.thehindu.com/sci-tech/health/govt-bans-14-combination-drugs-used-to-treat-common-ailments/article66927674.ece>

Q.1 Which of the following statements regarding Fixed-Dose Combinations (FDCs) is correct?

1. FDCs are primarily used to simplify treatment regimens and improve patient compliance.
2. FDCs are subject to regulatory scrutiny and can be marketed without approval.
3. FDCs always provide better therapeutic outcomes compared to individual medications.

Select the correct answer from the options given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1,2 and 3 only
- (d) None of the above

Answer: (a)

Q.2 Which of the following is a potential advantage of Fixed-Dose Combinations (FDCs)?

1. FDCs offer greater flexibility in adjusting the dosage of specific components.
2. FDCs can simplify treatment regimens and improve patient compliance.
3. FDCs eliminate the risk of drug interactions due to their fixed ratios.

Select the correct answer from the options given below:

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1,2 and 3

Answer: (b)

Q.3 Discuss the advantages and challenges associated with the use of Fixed-Dose Combinations (FDCs) in healthcare. How can FDCs contribute to improving patient outcomes, and what are the key considerations in their appropriate utilization?

Rishabh