Dosage form design

The general considerations in dosage from design

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General Considerations

- Nature of the illness
- Manner in which it is treated (locally or through systemic action)
- Age

General Considerations

- If the medication is intended for systemic use and oral administration is desired,
  - tablets and/or capsules are usually prepared because they are easily handled by the patient and are most convenient in the self-administration of medication.

General Considerations

- If a drug substance has application in an emergency in which the patient may be comatose or unable to take oral medication,
  - an injectable form of the medication may be prepared.

General Considerations

- Motion sickness, nausea, and vomiting,
  - tablets and skin patches are used for prevention
  - suppositories and injections for treatment.

General Considerations

- For infants and children younger than 5 years of age,
  - Pharmaceutical liquids rather than solid forms are preferred.
    - These liquids are usually administered directly into the infant's or child's mouth by drop, spoon, or oral dispenser.

General Considerations

- When a young patient has a productive cough or is vomiting, gagging, or simply rebellious,
  - some of the liquid will be expectorated.
  - Injections, or suppositories may be helpful.

General Considerations

- If there is difficulty swallowing medication:
  - Chewable tablets.
    - Should be palatable.
  - Capsules may be beneficial here (slippery).
    - if a person has difficulty swallowing a capsule, the contents may be emptied into a spoon, mixed with jam, honey, or other similar food to mask the taste of the medication and swallowed.

General Considerations

- For multiple daily administration of drugs
  - The more distinctive the size, shape, and color of solid dosage forms, the easier the proper identification of the medications
  - Use of sustained release preparations.

The preformulation, a brief summary

Various *initial formulations* of the product are developed

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examined for desired features (e.g., drug release profile, bioavailability, clinical effectiveness) and production scale-up.

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The formulation that best meets the goals for the product is selected to be its ***master formula***.

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Each batch of product must meet the specifications of the master formula.

Preformulation studies

- The following preformulation studies provide the information needed to define the nature of the drug substance. This information provides the framework for the drug's combination with pharmaceutical ingredients in the fabrication of a dosage form.