



HOSPITAL MANUFACTURING

(Dr.) Anupriya Kapoor
Assistant Professor
School of Pharmaceutical Sciences
CSJMU, Kanpur

Hospitals are slowly moving to manufacture their medicinal requirement in the own premises. Apart from sterile manufacturing units for large volume fluids and other parenterals, hospitals can manufacture non-sterile liquid oral preparations, external and bulk preparations.

- Type of product manufactured may vary from hospital to hospital.
- A large sized hospital deals with critical patients in addition to others.
- In the critical patients, it is very common to use parenteral preparations that are required in emergency.
- The time and quantity is of the utmost importance. Many hospitals go for manufacture of sterile preparation with in hospital.

Economic consideration

Factors which determine the economy of a hospital

1. Material requirement
2. Manufacturing requirement
3. Manufacturing staff
4. Manufacturing capacity
5. Manufacturing equipment
6. Operating cost

MANUFACTURING PRACTICE AND PRODUCTION CONTROL

(1) Sterile manufacture

(2) Non- sterile manufacture

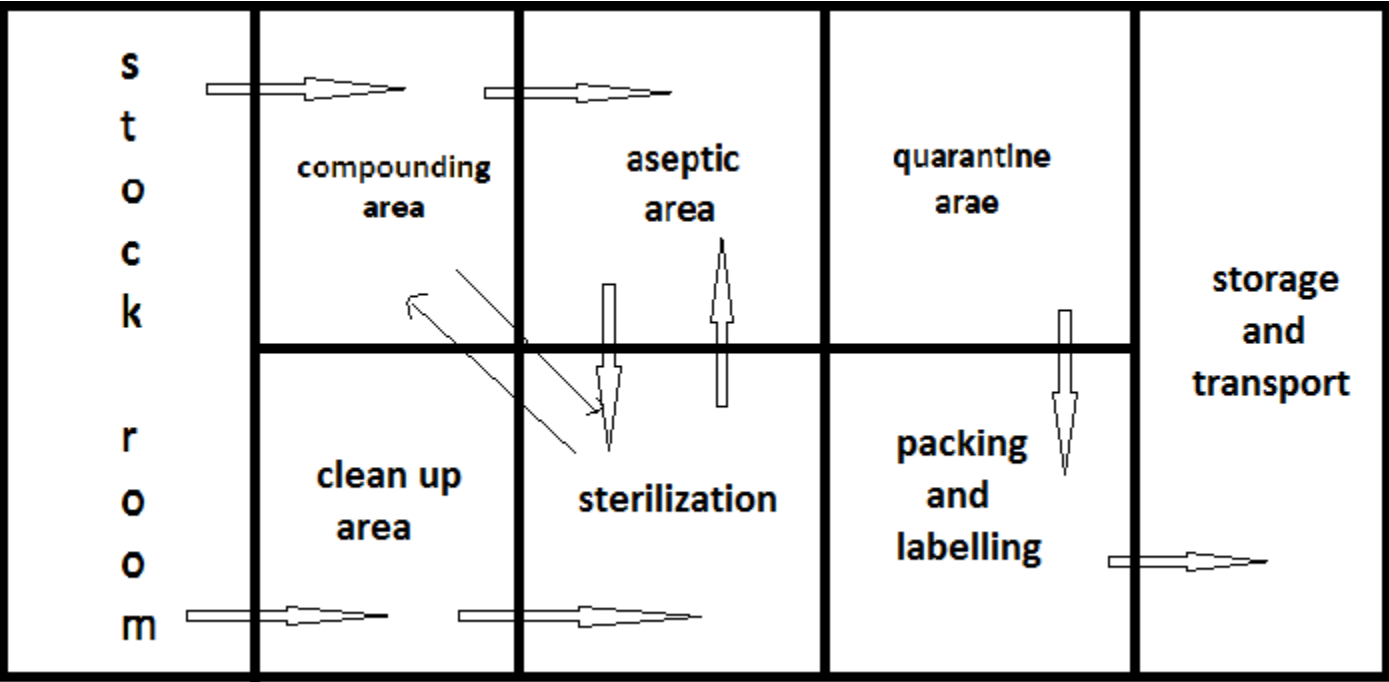
Sterile Manufacture

- **Large and small volume parenteral:**

The volume of injectable fluids vary greatly from fractions of millilitre to several hundred millilitre. IV fluids vary from one ml to 500 ml, or more than 500 ml. IV fluids of 500 ml and above are called as large volume parenteral (LVP).

- Facilities and Requirements
- Facilities :- maximum degree of cleanliness
- Environmental control
- Traffic control
- Maintenance :- at the end of working or night.
- Disinfection
- Irradiation :- UV rays
- Air cleaning
 - Conventional clean room systems
 - Laminar flow clean room systems

Layout of sterile products area



Formulation of parenterals

- Vehicles
 - Aqueous vehicle
 - Non Aqueous vehicles :- oils, alcohol.
- Anti bacterial agents
- Anti oxidants
- Buffers

Production Planning & Processing

- Cleaning of equipments
- Cleaning of containers and closures
- Preparation of solution or suspension
- Filtration
- Filling of the product in ampoule/ vial
- Sealing
- Sterilization
- Test for quality control

Test for quality control

- Sterility test.
- Clarity test.
- Leakage test.
- Pyrogen test.

Non Sterile Manufacture

Manufacturing operations are generally economical when the hospital is having large requirements. Hospitals interested in the manufacture of drugs are required to take a proper license and follow the rules framed in schedule M.

Manufacturing of liquid orals

- Monophasic liquid dosage forms :- mixtures, syrups and elixirs.
- Biphasic liquid dosage forms :- suspensions and emulsions.

Manufacturing of preparations for external use

- Ointments
- Pastes
- creams