

Dosage Forms

- All medicines contain
 - o API (Active pharmaceutical ingredient) – The actual drug molecule/s
 - o Excipients
 - All other ingredients
 - Used to enhance the performance of a medicine
 - Should be pharmacologically inactive
 - Over 800 excipients in usage

Routes into the human body

- Eyes, Ears, Nose, Lungs
- Stomach, Muscle, Vein/Arteries
- Skin, Anus, Vagina, Urethra

Classification of Dosage Forms

- By site/route of administration (e.g. injection vs oral)
- Physical appearance (e.g. tablet vs capsule)
- Composition or special features (i.e. slow release or controlled release)
- Type of action (e.g. local vs systemic)

Injections



- Types of needles
 - o Hypodermic needle and syringe
 - Needle is the pin
 - Syringe is only the container holding the liquid
 - o Bifurcated needle
 - Head has two "forks"
 - Dipped into liquid then jabbed into skin multiple times (on surface) until blood appears (so that the vaccine is just under the skin)
 - o Microneedle
 - o Nanoneedle

- Problems with injections
 - o Pain/swelling/discomfort (lowest form of patient compliance)
 - o Needle stick injuries
 - o Must be done by trained medical staff
- Advantages of injections
 - o Systemic or localised drug delivery
 - o Rapid action
 - o No absorption issues
 - o Accurate dosing
 - o Reduce first pass metabolism
- Considerations for injections
 - o Solutions (no solids; except for IM injections)
 - o Isotonic (correct concentration), excipients include NaCl and sugar
 - o Sterile

Oral (Solid dosage forms/tablets)

- Tablets – Hard compressed solids that disintegrate in contact with saliva, stomach or intestinal fluids (includes sublingual and wafers)
 - o On a tablet box, if PI CMI is written on the packaging (or controlled slow release) then the table cannot be crushed
- Capsules – Filled with either powder, granules or liquid (made of two-piece plastic or gel-based coatings)
- Lozenges – Syrup-sugar based. Drug must be heat resistant, designed to be sucked
- Effervescent tablets – Designed to dissolve or disintegrate. More rapid action than regular tablets/capsules. Moisture sensitive. Harder to manufacture and store
- Gum and chewable tablets – Good for fast acting applications (e.g. nicotine gum)
- Powders and granules
- Process of taking tablets: Disintegration -> Dissolution -> Absorption -> Action
 - o For effervescent tablets: Disintegration and dissolution are done in one step
- Ways to identify different oral solid dosage forms:
 - o Form (tablet, wafer, lozenge, capsule)
 - o Shape (round, oval, triangular, square)
 - o Colour (white, brown, red, green, blue, yellow)
 - o Markings (drug name, manufacturing, or other markings)
 - o Scoring (to make breaking the tablet easier)
- Contents of a solid oral dosage form:
 - o API (one or more drugs)
 - o Bulking agent (to make the tablet sizeable, e.g. lactose)
 - o Binding agents (to hold API and excipients together)
 - o Lubricants (to stop sticking to the punch and die)
 - o Glidants (to improve powder flow)
 - o Disintegrant (to swell and break the tablet apart in the stomach)
 - o Dyes (to colour the tablet)

Social Accountability in Pharmacy

- Healthcare equity is a high-priority area of focus in contemporary practice
- Underrepresentation of minority or marginalized social and cultural groups in healthcare is a global problem
- Social accountability (SA) is a collaborative practice between communities and the health care and education systems to address the health care needs of all communities

WHO (World Health Organisation)

- Defines the SA of healthcare schools (universities) as: *"the obligation to direct their education, research, and service activities toward addressing the priority health concerns of the community, the region, or nation they have a mandate to serve. The priority health concerns are to be identified jointly by governments, health care organisations, health professionals and the public."*

Australian Pharmacy Council (APC) Standards of Practice [2020]

- 'Accountability' is an obligation or willingness to accept responsibility or to account for your actions
- 'Social accountability' is an underpinning principle to address public safety, cultural competence, professional identity and interpersonal (sometimes called 'soft') skills [communication]

What is Social Accountability?

- Premised on the idea of creating self-sustaining and improved healthcare systems with better patient outcomes in 'underserved' communities
 - o An 'underserved' population is a group that does not "have adequate access to medical care. This includes rural, elderly, low-literacy, blue collar, and poor populations."
 - Additional groups can include homeless and special needs communities
 - Too few primary care providers, high infant mortality, high poverty, high elderly population

Health equity

- "Defined as the absence of unfair and avoidable or remediable differences in health among population groups defined socially, economically, demographically or geographically"
- Life expectancy and healthy life expectancy have increased, but unequally. There remain persistent and widening gaps between those with the best and worst health and well-being
- Poorer populations systematically experience worse health than richer populations (even with Medicare)
 - o 18-year difference in life expectancy between high- and low-income countries
 - o In 2016, the majority of premature deaths due to non-communicable diseases (NCDs) occurred in low- and middle-income countries
 - o Under-5 mortality rate is more than 8x higher in Africa than European countries
 - Such trends are unfair, unjust and avoidable
 - These health differences are caused by structures that exist at all levels in society (society, politics, laws, economics)
 - Inequalities in health are socially determined, preventing poorer populations from moving up in society and making the most of their potential

- Pursuing health equity means striving for the highest possible standard of health for all people and giving special attention to the needs of those at greatest risk of poor health, based on social conditions
- Action requires not only equitable access to healthcare but also means working outside the healthcare system to address broader social well-being and development

Determinants of Health

- Social determinants of Health (WHO)
 - o Context of people's lives determines their health
 - o Individuals are unlikely to be able to directly control many of the determinants of health
 - o Factors such as where we live, the state of our environment, genetics, our income, education level, employment status, culture, and our relationships with friends and family all have considerable impacts on health
 - Social and economic environment
 - Physical environment
 - Person's individual characteristics and behaviours – balanced eating, physical activity, smoking, drinking, stress, gender (male and female specific diseases)
 - o Access and use of health care services have less of an impact, contrary to common belief

Cultural Competence in Pharmacy Practice

- 4 Pillars of Bioethics
 - o Respect for self-determination and dignity (**autonomy**)
 - o Fair dealing, non-discrimination; unbiased (**justice**)
 - o Best-interest of the patient (**beneficence**)
 - o Do no harm (**non-maleficence**)
- AHPRA Code of Conduct
 - o Section 2.4c – upholding the duty to the patient or client and not discriminating on grounds irrelevant to healthcare
 - o Section 3.2 – partnership between a practitioner and the person they are caring for requires high standards of personal conduct and good communication
 - o Section 3.3 – making sure, whenever practical, that arrangements are made to meet the specific language, cultural and communication needs of patients
 - Whenever necessary, use qualified language interpreters that aren't in a relationship with the patient and will keep confidential, and is approved by consent of the patient
 - Problems with interpreters
 - o Different interpretations of illness and treatment
 - o Disparate values in relation to death and dying
 - o Decision making is different
 - o Unequal distribution of power in the relationship between patient and healthcare provider