

DRUG CLASSIFICATION SYSTEMS

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OUTLINE

1. What are drug classification systems?
2. What types of systems are there?
3. What are each of their strengths and weaknesses?
4. How do they compare against each other?
5. Conclusion

WHAT ARE DRUG CLASSIFICATION SYSTEMS?

- A method for categorizing drugs into a series of numbers or “codes”
- Simplifies the ability to identify the appropriate medication
 - Mechanism/Class, Usage, Strength, Dose Form, etc.
- Used in payment, billing, and analysis of medications in the healthcare system

THE PLAYERS

- There are multiple classification systems available in the U.S.
- 3 main systems in this presentation:
 - Generic Product Identifier (GPI)
 - American Hospital Formulary System (AHFS)
 - Generic Code Number (GCN)
- One is not “better” than another. Each has their own logic and individual methods in organizing medications.

GENERIC PRODUCT IDENTIFIER (GPI)

- From Medi-Span
- Up to 14 characters (7 couplets)
- Divided into a therapeutic classification hierarchy
 - As you increase the amount of couplets, more specific subgroup of drugs are being identified.
 - Defines equivalent drug products having the same active ingredients, strength, route, form, and therapeutic use
- Example:
 - 58-20-00-60-10-01-05
 - Nortriptyline HCL Capsule 10 mg

GPI HIERARCHY

GPI	Coding	Example
58-	Drug Group	Antidepressants
58-20-	Drug Class	Tricyclic Agents
58-20-00-	Drug Sub-class	Tricyclic Agents
58-20-00-60-	Drug Name	Nortriptyline
58-20-00-60-10-	Drug Name Extension	Nortriptyline HCL
58-20-00-60-10-01-	Dosage Form	Nortriptyline HCL Capsule
58-20-00-60-10-01-05	Strength	Nortriptyline HCL Capsule 10 mg

**Multiple medications can be grouped under smaller couplets, but as the code expands, a specific drug is being identified.*

GENERIC PRODUCT IDENTIFIER (GPI)

- Strengths:
 - Each number has a defined meaning (not random) and is a **sequential flowing system**
 - *If you see 17 as the first couplet, you know it is a vaccine and every other number after it describes the vaccine even further*
 - Simple, logical, and easy to use
 - Specific: Complex drug code with many tier levels
- Weaknesses:
 - Does not subdivide into **package size or manufacturer**
 - *Such as NDC codes*
 - *3 code segment (XXXXX – XXXX – XX)*
 - *Labeler code (manufacturer)*
 - *Product code (strength, dosage form, formulation)*
 - *Package code (package size/type)*

GENERIC CODE NUMBER (GCN)

- From First Databank (FDB)
- 5-digit code to represent a **clinical formulation**
 - Specific to: Ingredient, Strength, Form, and Route
 - Same across manufacturers and/or package size
 - Can be used to group **pharmaceutically equivalent products** together
 - *One drug can have multiple GCNs depending on product's available strength, forms, and route of administration.*
 - *Ex: Nutritional supplement or multivitamins*
 - The numbers itself have no significance
- Example:
 - 21414: Gabapentin 300 mg tablet
 - 21414: Neurontin 300 mg tablet

GENERIC CODE NUMBER (GCN)

- Strengths
 - Same across all manufacturers, package size, and brand/generic products.
 - Specific set of numbers per product
 - Does not require consistent updating
- Limitations
 - Absence of logical flow in the code (no significance in each number)
 - Does not include indication/class of drug
 - *Only identifies Ingredient, Strength, Form, and Route*
 - *Harder to identify an ingredient using just the code alone*

AMERICAN HOSPITAL FORMULARY SERVICE (AHFS)

- From American Society of Health-System Pharmacists (ASHP)
- 4 tier hierarchy classification: Each tier describes a specific subset of drugs
 - 31 classifications in 1st tier
 - 189 classifications in 2nd tier
 - 269 classifications in 3rd tier
 - 105 classifications in 4th tier
- Example:
 - **28** : 00 : 00 : 00 = CNS agents
 - 28 : **08** : 00 : 00 = Analgesics and Antipyretics
 - 28 : 08 : **04** : 00 = NSAIDs
 - 28 : 08 : 04 : **08** = COX-2 Inhibitors

AMERICAN HOSPITAL FORMULARY SERVICE (AHFS)

- Multiple combinations of codes possible for each product
 - Unlike GPI and GCN (ingredient, form, strength, route, use), AHFS divides medications into:
 - *Pharmacologic, therapeutic, and/or chemical characteristics*
 - Less specific than that of a GPI and GCN
 - *Does not take into account route of administration or dosage*
 - Some classes only have one tier
 - *Not all products have to divide out into all 4 tiers*
 - *16:00 = Blood products*
 - *60:00 = Gold compounds*

AMERICAN HOSPITAL FORMULARY SERVICE (AHFS)

- Example: Labetalol (β Blocker w/ α activity)
 - 24 : 04 : 04: 16
 - CV Drug : Cardiac Drug : Antiarrhythmic (AA) Drug: Class II AA
 - 24 : 08 : 04
 - CV Drug : Hypotensive Agent : Alpha-Adrenergic Blockade
 - 24 : 08 : 08
 - CV Drug : Hypotensive Agent : Beta-Adrenergic Blockade
 - 24 : 24
 - CV Drug : Beta-Adrenergic Blocking Agents
- Example: Gentamicin (Aminoglycoside Antibiotic)
 - 8 : 12 : 02
 - Anti-Infective Agent : Antibacterial : Aminoglycoside
 - 52 : 04 : 04
 - Eye, ear, nose, and throat (EENT) Preparations : Anti-infective : Antibacterial

AMERICAN HOSPITAL FORMULARY SERVICE (AHFS)

- Strengths:
 - Subdivides into multiple categories
 - *Simple to see the logic and flow*
- Limitations:
 - Variety of combinations are possible for certain medications
 - *Non-specific code – Especially for medications with multiple indications*
 - Requires constant maintenance and updates regarding drug assignments and classification changes
 - *List of annual changes and updates can be found on the ASHP website*
 - *Example:*
 - *Solvaldi Old AHFS Class: **8 : 18 : 32 (Nucleosides and Nucleotides)***
 - *Solvaldi New AHFS Class: **8 : 18 : 40.16 (HCV Polymerase Inhibitors)***

COMPARISONS AMONG SYSTEMS

Attribute	GPI	GCN	AHFS
Hierarchy	Yes	No	Yes
Logical Flow	Yes	No	Yes
Specificity	High	Moderate	Low
Numerical Digits	Up to 14	5	Up to 8
Code for: Linezolid 600 mg Tablets	16-23-00-40-00-03-30	26870	08 : 12 : 28 : 24
Code for: Diazepam 1 mg/mL SOLN	57-10-00-40-00-20-01	31551 45560	28 : 12 : 08 28 : 24 : 08
Code for: Diazepam 10 mg TAB	57-10-00-40-00-03-15	14220	28 : 12 : 08 28 : 24 : 08

CONCLUSION

- Each classification system has their own benefits and disadvantage
 - *There is no right or wrong system to use*
- These systems enable parties to effectively locate and identify a drug for interactions with other parties (ie. Pharmacy and their interaction with payers)
 - *Enables for a smoother and cleaner transition between steps in a healthcare system*

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