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To SMQ or not to SMQ?

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Standardised MedDRA Queries (SMQs) are "groupings of Medical Dictionary for Regulatory Activities (MedDRA) terms, ordinarily at the Preferred Term (PT) level, that relate to a defined medical condition or area of interest."[1] Often, the PTs grouped under a particular SMQ include terms grouped by signs, symptoms, diagnoses, syndromes, physical findings, laboratory and other physiologic test data.

Clinical researchers can use SMQs to identify patients who might qualify for a clinical study. They also can be used to identify enrolled study subjects who might not meet an eligibility criterion, to detect a safety signal, or to determine the prevalence of an adverse condition.

History

The MedDRA user community recognized the need for standard tools to assist in the identification and retrieval of safety data. Prior to the creation of SMQs, MedDRA had formulated Special Search Categories (SSCs), which were intended for a similar purpose. However, after several years, regulators and industry concluded that SSCs were too broad, incomplete and inflexible.

Figure 1. Acronyms

CIOMS	Council for International Organizations of Medical Sciences
ICH	International Council on Harmonisation
LLT	Lower-Level Term
MAG	MedDRA Analytical Grouping
MSSO	Maintenance and Support Services Organization
PT	Preferred Term
SMQ	Standardised MedDRA Query
SSC	Special Search Categories
SSQ	Standardised Search Query

As a result, in 2002, the MedDRA Maintenance and Support Services Organization (MSSO) developed MedDRA Analytical Groupings (MAGs). MAGs are defined as "collections of terms from any level of the MedDRA hierarchy (except, in general, Lower-Level Terms (LLTs)) and from any, several or all MedDRA SOCs that relate to the medical condition or area of interest defined by the name of the MAG, including signs, symptoms, physical findings, laboratory and other physiologic test data, and associated social circumstances related to the medical condition or area of interest."[2]

A separate initiative by the Council for International Organizations of Medical Sciences (CIOMS) was also underway to address the need for special groupings using data coded in MedDRA. These groupings were called Standardised Search Queries (SSQs). Since the MAG and SSQ concepts were almost identical, in 2003, the MSSO and CIOMS initiatives joined forces in a new initiative to create Standardised MedDRA Queries (SMQs). In 2003, the International Council on Harmonisation (ICH) endorsed the SMQ initiative. MedDRA Version 16.1, released on September 1, 2013, includes 94 published SMQs. Each new MedDRA version includes any new changes to, or additions of, SMQs, and thus SMQs are version-dependent.

SMQ Content

Each MedDRA release includes a listing of SMQs. An SMQ may have a "Narrow Scope" and/or a "Broad Scope." Some SMQs, e.g., SMQ Acute pancreatitis, do not specify scope. The MedDRA terms in a Narrow Scope SMQ identify cases that are highly likely to represent the condition of interest (high specificity). The MedDRA terms in a Broad Scope SMQ identify all possible cases (high sensitivity). For example, here is the combined Broad and Narrow Scope SMQ for acute renal failure from MedDRA version 16.1.[3]

Acute renal failure (SMQ) (Production Release April 2005)

Definition

- Acute renal failure (ARF) is a syndrome characterized by: A relatively rapid decline in renal function that leads to the accumulation of water, crystalloid solutes, and nitrogenous metabolites in the body.
- Other clinical features include: increase in serum creatinine and urea nitrogen levels (azotemia) greater than 0.5 and 10 mg per deciliter, respectively; oliguria; and changes in the rate of urine flow.

ARF may present with a *de novo* onset in individuals whose baseline renal function was within normal limits. Additionally, ARF may consist of acute exacerbation of pre-existing chronic renal insufficiency.

Inclusion/Exclusion Criteria

Included:

Narrow scope: Diagnoses and symptoms that are unique or directly lead to acute renal failure are included. For example, PT *Renal failure acute* (diagnosis) and PT *Anuria* (symptom).

Broad scope: These terms have the potential of identifying positive cases:

- Test results that are closely related to acute renal failure, such as PT *Blood urea increased* (test result)
- Key pathological changes of ARF, such as acute tubular necrosis
- Prominent drug-induced etiologies of ARF, such as interstitial nephritis

Some commonly reported reactions identified in drug-induced acute renal failure, such as terms for acute tubular necrosis, pre-renal failure, vascular nephropathy, and tubular obstruction.

Renal dialysis PTs from SOC Surgical and medical procedures, e.g., dialysis, hemodialysis, and peritoneal dialysis

Excluded:

- Normal and unspecified investigational terms (e.g., PT *Blood creatinine*)
- PTs referring to chronic renal failure (e.g., PT *Renal failure chronic*)
- Electrolyte imbalances (i.e., terms for hyperkalemia, hyponatremia and blood potassium increased): Case evaluations in Phase I testing revealed that these electrolyte imbalances were not specific enough for ARF to identify representative cases
- Terms representing prerenal etiologies (e.g., PT *Renal vein occlusion*, PT *Cardiac failure*, PT *Hepatic cirrhosis,* etc.) or terms suggestive of a non-drug-induced renal failure (e.g., PT *Glomerulonephritis acute*, etc.)
- PT *Nephritic syndrome* because it is commonly caused by infection or other non-drug related events

- This SMQ is focused on the acute phase, i.e., sudden, reversible failure of kidney function. Terms for prolonged reactions are excluded, such as focal glomerulosclerosis, which occurs when scar tissue forms in some of the glomeruli of the kidney, proliferative glomerulonephritis, and rapidly progressive glomerulonephritis, that include conditions in which progressive loss of kidney function occurs over weeks to months.

Notes on Implementation and/or Expectation of Query Results

Acute renal failure (SMQ) has narrow and broad search terms.

List of References for Acute renal failure (SMQ)

- *The Merck Manual*, 17th Edition.
- *Cecil Textbook of Medicine*, 19th Edition.
- *Harrison's Principles of Internal Medicine*, 13th Edition.

References

1. MSSO Guide, September 2013
2. www.fda.gov/ohrms/dockets/dailys/03/feb03
3. MSSO MedDRA Version 16.1 SMQ list

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