



SIGNAL DETECTION

GLASS THREE





WHAT IS A SIGNAL

The definition of a signal as provided by the CIOMS Working Group 8 is:

"... information that arises from one or multiple sources (including observations and experiments), which suggests a new potentially causal association, or a new aspect of a known association, between an intervention and an event or set of related events, either adverse or beneficial, that is judged to be of sufficient likelihood to justify verificatory action"

Simply put: A signal is a hypothesis suggesting a causal relationship exists between an AE and the medication



CHARACTERISTICS OF A SIGNAL

NEW - Unexpected/Unlisted

OLD - Changes in frequency or severity

IMPORTANT MODULES

- **GVP Module IX - Signal Management**

(<https://pharmacovigilancemadeeasy.com/gvp-module-ix>)

- **GVP Module XV - Safety Communication**

(<https://pharmacovigilancemadeeasy.com/gvp-module-xv>)



SIGNAL MANAGEMENT

The process of signal management in pharmacovigilance is a set of activities which aim to determine

- whether there are new risks associated with a particular drug, or
- whether risks associated with a particular drug have changed

This is the process by which the suspected **causal association** between AE and a drug is validated/confirmed leading to recommended action regulatory action to all stakeholders

The process for managing signals within pharmaceutical companies and regulatory



SIGNAL MANAGEMENT

authorities/pharmacovigilance centers must systematically address the following steps:

- Signal detection
- Validation and Confirmation
- Analysis
- Prioritization
- Assessment
- Recommending action

At the GST you seek endorsement for:
Valid/Refuted, Risk prioritization (severe, moderate or mild - determines the recommended actions and timelines), risk categorization (important identified, important potential)



SIGNAL DETECTION

TYPES

- Qualitative: Clinical Judgement (Inadequate/Limited information, Adequate but with confounders, signal index case)
- Quantitative: Disproportional statistics (ROR, EBOS)
- The act of looking for and/or identifying signals using the event data from any source



SIGNAL DETECTION

Sources for the detection of signals can come from:

- spontaneous reporting
- active monitoring systems
- interventional studies (clinical trials)
- non-interventional studies (pharmacoepidemiology studies)
- non-clinical studies (e.g. animal toxicology studies)
- systemic reviews (i.e. thorough review of the published literature)
- meta-analyses (i.e. mathematical pooling of all the clinical trial data)
- other relevant sources.