WHITE PAPER

CHALLENGES AND SOLUTIONS IN LOCAL/REGIONAL LITERATURE MONITORING IN PHARMACOVIGILANCE

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Literature review - its importance

The medical and scientific literature is a significant source of information for monitoring the safety profile and risk-benefit balance of medicinal products, particularly in relation to the detection of new safety signals or emerging safety issues.

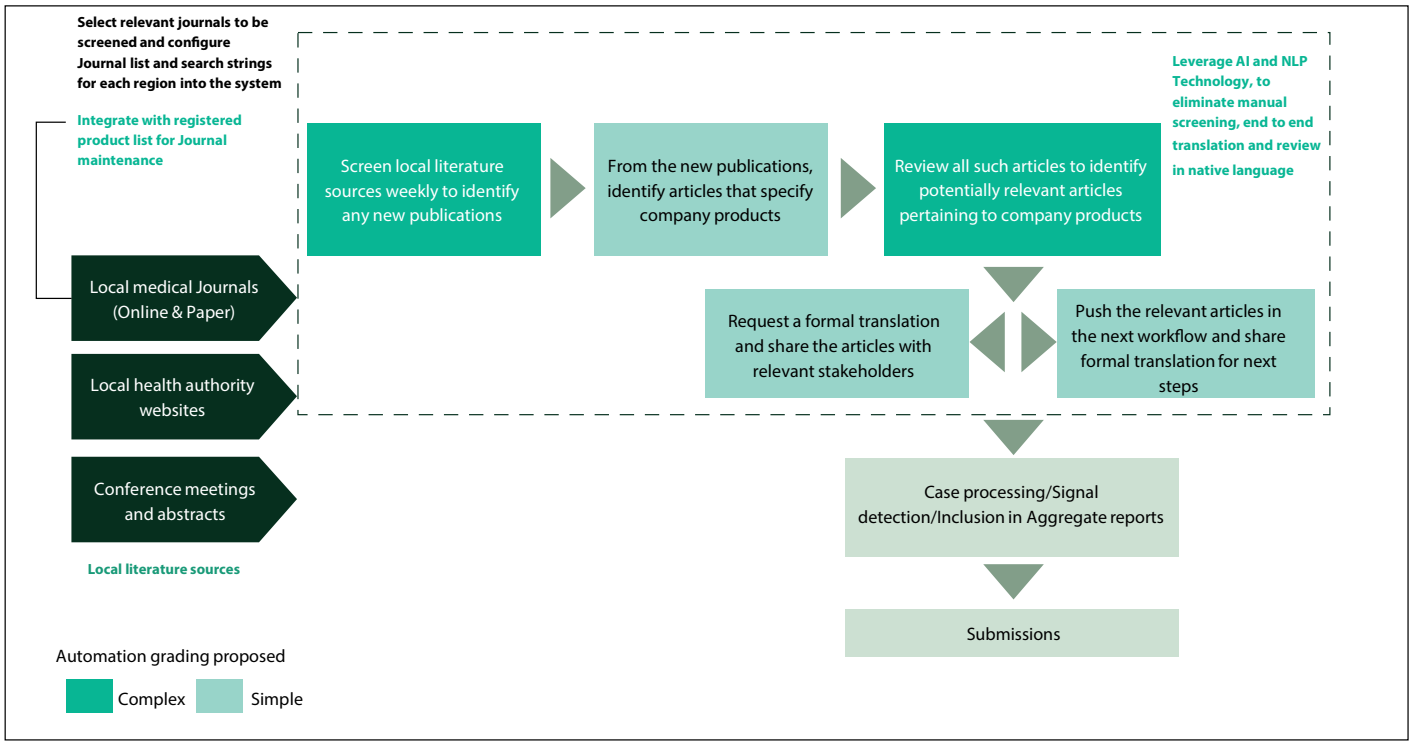
Pharmaceutical companies or the marketing authorization holders (MAHs) are obligated to do a worldwide literature screening starting at the submission of the marketing authorization, including the period between submission of the dossier and approval of the marketing authorization application. If the marketing authorization is "active" then the searches must continue. The goal is to identify Individual Case Safety Reports (ICSRs) and any possible changes to the benefit-risk profile of the medical products for reporting to Health Authorities (HA) and inclusion in Periodic Safety Update Reports (PSURs).

Methodology

Global Literature screening: HAs expect the MAHs to maintain awareness of the publications through a systematic literature review of widely used reference databases which have a broad medical coverage (e.g. Medline, Excerpta Medica or Embase) no less frequently than once a week).

Local or Regional literature screening: As per the GVP module VI, the MAHs are expected to perform literature review in countries where their products are marketed, hence they should have detailed and established procedures in place to monitor scientific and medical publications in local journals.

Process flow of local literature monitoring



Current challenges, Benefits of automation and the Future state

Articles relevant to the safety of medicinal products are usually published in well-recognized scientific and medical journals which are covered in the most well-known databases (e.g. Medline and Embase), however, new and important information may be first presented at international symposia or in local journals.

Since there is no regulatory guidance on the local literature process hence most MAHs are often faced with challenges in conducting local literature screening. A few challenges are listed below for consideration:

Challenges	Current State	Benefits of automation and the Future state
Increase in manual efforts due to high workload	1. The local safety officer/local safety responsible person needs to apply their medical judgement and knowledge to select the relevant journals at their countries and maintain the lists locally. This list of journals needs to be maintained for inclusion/exclusion of new/existing journals subject to addition or withdrawal of products 2. Local literature publications are mostly written in native language and sometimes these are also not available online. Native language speakers are required to screen such publications and manual screening of paper publications (unstructured data) to identify articles specifying the company's products which is a time-consuming task. 3. Multiple level of reviews can pose risk of inefficiencies like the same document being viewed multiple times and can compromise the quality/completeness of the information related to the adverse drug reaction.	1. A great deal of manual efforts could be eliminated by maintaining local journals for all countries in one platform with integration to the registered products list of all the countries. An update in the product list could then trigger updates to the corresponding journal list. 2. With adoption of translation capability and Optical character recognition (OCR) technology, the need to maintain native staff and manual screening of paper publications could be eliminated. 3. The medical review staff could be deployed to focus on benefit-risk assessment of the potentially relevant literature articles rather than reviewing the irrelevant literature multiple times which would be filtered with preliminary screening.
Increase in cost	1. Local language speaking staff needs to be recruited to manage the local literature process 2. Need for end-to-end translation to conduct the screening and review of each foreign language article by a non-native language speaker 3. Translations are a time-consuming task that is often outsourced to vendors.	1. The local literature process for multiple countries could be handled by one team without the need of maintaining native language speakers in every affiliate office for processing literature articles weekly 2. Translation costs could be markedly reduced as the preliminary screening would be handled by the in-built translation capability and need for end to end translation is eliminated and only selective text translation could be requested with a quick turnaround time
Impact on quality and lack of Regulatory compliance	1. Frequency of literature review is expected to be weekly, and literature articles go through multiple level of reviews and steps which could potentially lead to missed regulatory timelines.	1. Redundant reviews of the same input reduced and increased efficiencies as it would improve quality and compliance of the end-to-end literature review process

Solutions

With this range of challenges, MAHs look for approaches and solutions that will not only expedite the local literature management but will also streamline the process making it more efficient, standard, and regulatory compliant.

One increasingly popular approach to the challenge of the high workload is to outsource local literature management to eliminate the need of maintaining the local safety staff. In addition to this, MAHs also look forward to automating the workflow management to minimize the manual efforts and leverage Machine learning to overcome the otherwise time-consuming steps and translation costs involved thereby minimizing the risk of missing the submission timelines without compromising on quality.

Information technology and automated tools can be leveraged to:

- Identify pre-configured key terms from the very lengthy publications to eliminate the laborious manual screening process and filter out the noise
- Introduce OCR methods to process Scanned/Paper articles to eliminate manual screening
- Integrate authentic translation features/ tools, to understand the medical context and shortlist potentially relevant articles (identified with key terms from automated screening) for further human review to eliminate increased (full journals) translation costs
- Enable the local affiliate module (within the safety database used by the MAH, such as in Argus) to directly export any valid ICSR to next workflow to eliminate/ duplicate efforts of reviewing the same document twice or thrice
- Provide a quick traceability which would come handy during audits/inspections
- Improve article pipeline management with features such as text mining and an alert system

A few limitations in automating the process

Process flow Step	Major Limitations in automation
Screen local literature sources weekly to identify any new publications o This step requires the literature associates to weekly screen all the journals which are available online to check if new issue has been published, Local journals are hosted on local websites or available as paper journals o The paper journals get delivered as and when a new issue is available, the online issues must be screened weekly as per regulations	1. Since integration with third party source is multifactorial, the solution should integrate with the subscription model and be designed after the subscribed article is made available on a repository. 2. Local language journal websites usually send out alerts in native language, adding translation time is a challenge 3. The scope of the medical journals to be screened changes very frequently (owing to the products marketed by the MAH), the maintenance of this integration would be another challenge
Review all such articles to identify potentially relevant articles pertaining to company products o Once the automated solution screens all articles published in journals with configured key terms (company products in this case), the human reviewer validates the articles from PV perspective	1. Assessment of articles for information other than ICSR such as preliminary safety information or potential new safety finding is a challenge and still requires human intervention

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References

https://www.ema.europa.eu/en/documents/regulatory-procedural-guideline/guideline-good-pharmacovigilance-practices-gvp-module-vi-collection-management-submission-reports_en.pdf

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