Unlock the potential of field medical insights with NLP

Inform medical affairs strategy and elevate physician interactions

Introduction

Medical affairs have a critical role to play within pharmaceutical companies and the broader eco-system. From providing medical insights to inform drug development, to informing and engaging clinicians as they administer therapies to patients with a wide range of needs and challenges.

Medical Science Liaisons (MSLs) notes or insights as they are sometimes referred are free text notes that capture the conversations that MSL have with physicians. Other field teams such as field HEOR professionals that engage with payors and providers also generate valuable notes data.

Unlocking the value in biomedical databases, real world sources and data from stakeholder interactions is vital for medical affairs teams to help with strategic decision making, tracking performance and trends, and responding to the changing needs of physicians and stakeholders.

The value of MSL generated data

As rich and valuable as this information can be, organizations have often shied away from using it at scale due to the inconsistent way it is captured or concerns over compliance. This is changing fast, as the role of medical affairs evolves to focus even more on insights and stakeholder engagement.

The main uses of this data include:

1. **Engaging physicians** - Understanding the needs of physicians and in turn of the patients they diagnose, and treat can inform communications and educational material, as well as the topics that MSLs need to be well versed in to help physicians and bring meaningful value
2. **Developing an effective medical strategy** - At a strategic level, understanding how key messages and priorities are discussed, how they resonate with physicians and what elements might be missing are critical insights for global medical affairs teams. Trending or emerging topics may trigger a refinement to the current thinking and help ensure a dynamic, stakeholder responsive approach to strategy development and planning
3. **Evidence planning** - Understanding the unmet needs and concerns of physicians directly can help inform evidence generation strategies and investment, including understanding which existing studies are important and what additional evidence would better inform decision making for treatment and other considerations such as safety

In addition to the insights value from the data, the analysis can also reveal better ways for MSL to capture the right data in the first place and also improve the quality of the interactions they have by understanding what topics and content resonate. A process that continuously and efficiently improves the quality of engagement and the resulting data captured is essential for overburdened teams trying to operate in complex therapy areas.

How we apply technology

Technology can help make the process of getting value from field notes scalable, generating refreshed outputs more frequently.

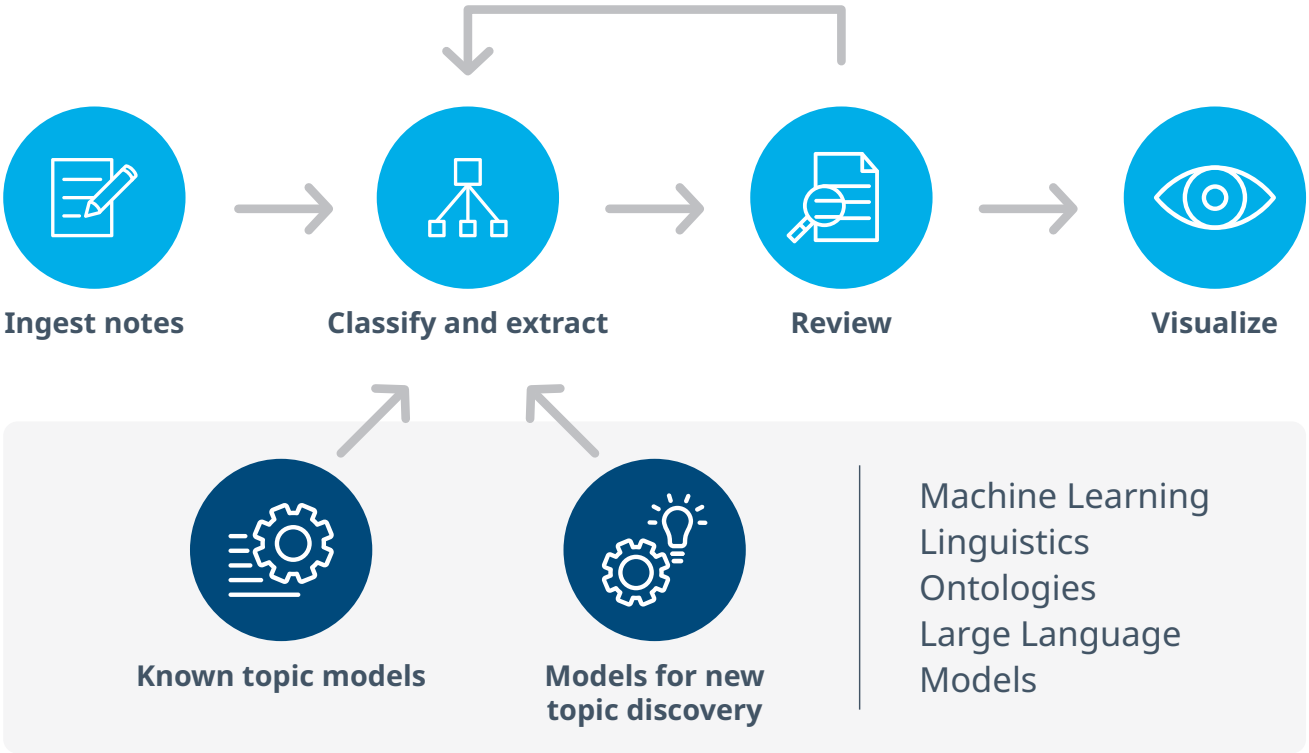
Using IQVIA natural language processing (NLP) we ingest raw MSL notes as well as any accompanying structured data about the interaction and use text-mining approaches to tag each note with key topics and sub-topics. For some topics there are also contextual aspects to be extracted to add additional detail to the data.

This classification or 'tagging' is done with a combination of trained machine learning models, generative AI approached such as GPT as well as rules-based linguistics.

Our NLP technology has the advantage of mature linguistics developed for life science and healthcare over 20 years, and a continuously updated library of 6.5m terms and synonyms for diseases, symptoms, drug names, biomarkers, genes and more. This hybrid approach provides a balance between the flexibility and speed of the latest models along with the transparency and specificity of established techniques.

In addition to known topics, we can also use these techniques to surface new topics, enriching the data further for analysis.

Figure 1: Simplified workflow for MSL note processing



Topic analysis

To speed up the process of configuring the solution we have experience in a range of specific topics that help us generate results quickly.

And in addition to these approaches, we can work with IQVIA medical experts to create annotated data sets to train large language models to classify notes in tailored ways.

Summary

Understanding the needs of doctors and patients based on timely data, from in-depth interactions between experienced professionals makes medical field notes an invaluable data source. The value is locked in an often inconsistent free-text form and by leveraging AI.

Figure 2: Example medical topics for text mining