



EVERSANA®

# USE OF MACHINE LEARNING TO ACCURATELY SIZE MARKET POTENTIAL AND OPTIMIZE SALES AND MARKETING RESOURCES

When planning the allocation of resources, manufacturers' sales and marketing teams are often challenged by the inaccuracy of claims databases and Electronic Medical Record (EMR) datasets. While the availability of de-identified medical claims data provides a number of applications in the commercial analytics space, including market sizing, forecasting and robust patient targeting and segmentation solutions, relying solely on the reported ICD-10 billing codes that an office submits for reimbursement can lead to significant missed opportunities when sizing a market and identifying HCP potential.

In many cases, offices submit codes that are specific to symptoms of a condition that a patient may be experiencing, and not necessarily the underlying medical condition itself. In addition, ICD-10 codes are often missing or not correctly reported, which hinders the identification of the right patients suitable for a specific treatment. This challenge exists for patients with rare diseases as well as those with more common conditions who manifest a specific cluster of symptoms, but whose underlying disease is not recognized or appropriately labeled in EMRs or medical claims datasets. These discrepancies in reported patient data can lead to a significant underreporting of the true patient potential for the medical condition and missed opportunities for brand teams.

However, recent advances in machine learning (ML) now make it possible to identify patients and their treating physicians more accurately in structured and unstructured clinical and administrative datasets. At EVERSANA, we apply ML to identify undiagnosed and misdiagnosed patients with rare diseases and other diseases that have a high prevalence of symptomatic-related diagnoses, along with their healthcare providers, to positively support commercial launches where accurate allocation of sales and marketing resources are critical to the success of these brands and the treatment of patients.

## Machine Learning as a Strategic Lever in Healthcare

Machine learning, a form of artificial intelligence that predicts outcomes leveraging multiple inputs and patterns relevant to the question to be addressed, evolved from the study of pattern recognition, and learning theory. The term was coined by Arthur Lee Samuel (1959), who defined ML as the "field of study that gives computers the ability to learn without being explicitly programmed". ML "learns" from data sets rather than following rule-based, preprogrammed logic, then identifies patterns in the data to make predictions from those patterns.



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ML is now at the forefront of precision medicine and value-based care. It enables not only researchers but also commercial teams to target the right patients for the right treatment; it assists in determining which patients are most likely to adopt a certain treatment, and which physicians are most likely to prescribe it. In addition, in a value-based care environment, ML helps establish the utilitarian value of a specific treatment for the payor and their members.

## EVERSANA addresses this problem with a multi-prong approach:

- ✓ Leverage clinical knowledge of the individual disease manifestations and their most frequent combinations, utilizing clinical references, national and international clinical registries, information from patient advocacy groups, publications, and key opinion leaders (KOLs) to build a claims-based phenotype using a probable combination of diagnostic codes.
- ✓ Develop insights from the known encounters with the healthcare system, including diagnostic tests, current treatments, and location of services as observed and described in patients with confirmed diagnosis of the disease of interest. This process includes leveraging information from EMRs and the claims history of individual patients with a confirmed diagnosis.
- ✓ Compare the claims patterns of the "highly probable patients" identified in the integrated EVERSANA patient datasets against those with a confirmed diagnosis.
- ✓ Use ML to identify, in the existing databases, highly probable patients with the most frequent expected combinations of clinical manifestations and clinical journey, and who have not yet been correctly identified or have not received the treatment of interest.

Through the use of sophisticated machine learning capabilities, manufacturers are able to paint a more accurate picture of their target patient population and the market potential. Application of this information supports the optimization of sales and marketing resources to educate physicians and get treatment into the hands of patients faster than was previously possible.

To learn more about how EVERSANA can help you apply machine learning to your business challenges, visit us at [EVERSANA.com](https://EVERSANA.com)

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