

# Evolution of Pharmaceutical Packaging: from Cost to Value 2000-2040

In the year 2000 global pharmaceutical shipments as a whole were worth \$164 billion. The data indicates this same segment was worth about \$340 billion in 2020, a gain of \$176 billion.

Packaged pharmaceutical goods are expected to grow at a compound annual growth rate (CAGR) of 13.74% from 2020 to 2027. Investments made by pharmaceutical and outsourcing firms to expand manufacturing facilities have positively impacted market growth. The emergence of new management systems, such as enterprise resource planning and manufacturing execution systems, has optimized the data management process. Growth in 2020-2040 is expected to eclipse the 2000-2020 trend.



## Social Growth and Influences

Five out of the twenty industries projected to grow the fastest from 2019 to 2029 are in healthcare and social assistance. Factors that are expected to contribute to the growth include increased demand from caring for an aging population, longer life expectancies, and higher numbers of patients with chronic conditions.

**Aging Population**- By 2029, 20% of the population will be over the age of 65.

**Lifestyle Diseases** - One-third of adults are obese, a contributing factor in chronic conditions requiring continued management.

**FDA Approvals** - CDER approvals in 2020 were 20% above the two trailing years, with biologics emerging as a leading class of therapeutics.

**Health Legislation** - In the near future, 32 million Americans receive access to health insurance.



## Packaging Influences

North America constitutes 35% of the world's pharmaceutical packaging demand, but many of the applications in the North American market can be translated globally. Factors that affect packaging include new technology, product differentiation, personalized medicine, and the regulatory environment.

**New Technology and Performance** - Higher quality packaging is driven by the FDA's QbD (Quality by Design) initiative. Better performance; assessed predictability/repeatability, child-resistant/senior-friendly designs, longer shelf-life, and more focused patient efficacy and safety.

**Better Performance** - Assessed predictability and reproducibility, child-resistant and senior-friendly designs, longer shelf-life, more focused patient efficacy, and safety are considerations. A well-designed package can protect product integrity as well as prevent errors and misidentification.



## Better Design

New technologies can improve the patient experience. Diabetes care has historically been multiple "needle sticks" of insulin. Transdermal, micro-pumps, and solid dose options can replace the needle. Packaging and delivery are more personalized as therapeutics are tailored for individuals versus "one size fits all."

**Product Differentiation** - Packaging can be a marketing tool for a drug product. This is especially important for off-patent or OTC brands entering the market. Packaging can drive user selection.

**Regulatory Changes and Requirements** - Serialization, track and trace, anti-counterfeiting, and "smart" packaging are innovations that serve multiple purposes and fulfill the spirit of QbD. The packaging itself reminds patients when and how to administer the next dose so that patient safety occurs not only in the primary package but the secondary package as well.



## Rondaxe Expertise

Rondaxe specializes in pharmaceutical consulting, providing drug development and manufacturing strategies to the pharmaceutical industry. Rondaxe is a diverse group of former directors and senior managers from the pharmaceutical industry with global expertise in drug products and packaging.