

# Tobacco Dependence Treatment Medications Only Recently Getting Their Time To Shine

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While a great deal has been accomplished over the past 40 years in tobacco control, the field of tobacco dependence pharmacotherapy has only recently come into its own. Until the last 20 years, safe and effective forms of nicotine replacement therapy (NRT) were not available. More recently, there have been novel products hitting the market, including non-nicotine medications (Zyban®) and various alternative forms of nicotine delivery. These have only been available for the past seven years. In addition, even though these medications have been on the market, they remain largely underutilized by healthcare professionals. According to the 2001 NJ Adult Tobacco Survey, only about 25% of NJ smokers reported that their provider either recommended or prescribed pharmacologic adjuncts for smoking cessation. As emerging products such as newer NRT's, other medications, and possibly vaccines, have their day in the sun, we must be vigilant in spreading the word to providers that effective nicotine pharmacotherapies currently exist and are available to be recommended to smokers wishing to quit.

## Brief time-line of major milestones for tobacco treatment medications in the U.S.

1904	The first laboratory synthesis of nicotine is reported. This step opened the door both for industry manipulation of nicotine content and delivery and for the production of medicinal nicotine.
1942	British researcher L.M. Johnston successfully substituted nicotine injections for smoking, and described addiction including tolerance, craving and withdrawal symptoms. "Clearly the essence of tobacco smoking is the tobacco and not the smoking. Satisfaction can be obtained from chewing it, from snuff taking, and from the administration of nicotine" (Lancet). Identification of the addictive nature of nicotine led to the concept of alternative forms of delivery...nicotine replacement therapy (NRT).
February 1984	FDA approves Nicotine Gum (2 mg) as a "new drug" and quit-smoking aid. At first, smokers used this "break-through" cautiously. Use gradually declined over the following eight years. Expectations as a "magic bullet" may have been high.
January 1992	Nicotine Patch is introduced. This product had the benefit of ease of use and continuous delivery. First year use tripled that of gum's introduction. Smokers may have been more comfortable after having tried nicotine replacement therapy (NRT) before. However, there still was a decline in the years following its introduction. Still one of the most popular forms of NRT available, and a good foundation for a treatment plan.
March 1993	Four mg Nicotine Gum is introduced. No significant increase in sales. However, better efficacy as this product could be used with reasonable success even in fairly dependent smokers.
April 1996	Nicotine Gum given over-the-counter approval. This resulted in wider use of the gum (an almost four-fold increase in sales), and for the first time allowed smokers to access NRT treatment on their own. In terms of overall efficacy, not much of a significant benefit, however, smokers are becoming more comfortable with the concept and products.
August 1996	Two brands of nicotine patches given over-the-counter status. Again, a significant increase in use and more familiarity of products. Starting to shift burden of "prescribing" away from health professionals.
August 1996	Nasal Spray introduced. Best tool for rapid delivery of NRT. Good for high dependence and craving situations. Limited by side effects, not widely utilized by prescribers.
May 1997	Zyban (bupropion) introduced as first non-nicotine medication approved for smoking cessation. Quickly became one of the most prescribed medications for tobacco dependence treatment. This was largely due to marketing and detailing by pharmaceutical companies. Offered smokers an alternative to nicotine. Remains a mainstay of treatment.
March 1998	Nicotine Oral Inhaler introduced. Again, a novel product with an added benefit of hand-mouth behavior substitution. However, not strongly marketed and thus not widely utilized by prescribers.
November 2002	Nicotine Lozenges (Commit) available in US. Viable alternative to gum. Over-the-counter status allowed ease of access, and less complicated use than gum. Limited by taste and cost.
2004 and beyond	Several new formulations of nicotine medication (e.g. straw, solution, pulmonary inhaler) and new medications (e.g. varenicline – nicotine receptor modulator; rimonabant – cannabinoid receptor modulator) are in various stages of experimentation. These will continue to provide treatment options for clinicians and smokers for years to come. Genetic-based interventions are even further down the line, but will be up and coming.

\* data from www.tobacco.org and CDC.MMWR 2000;665-668