

Market for Pharmaceuticals

The Structure of the Industry

- The U.S. has relied on private sector initiative and market mechanisms for the direction of research and development
- In the pharmaceutical industry, government, private philanthropy and academia intimately involved in new product development
- Government sponsors little *applied research*, towards commercialization of a product
- Government & private philanthropy directly fund *basic research*, to advance knowledge

Role of Research in the Age of Technology

- The world's largest pharma firms spent over \$500 billion on R&D since 2000, and \$51.2 billion in 2014, which is 17.9% of their combined sales of \$286 billion.
- 75% of the world's total R&D spending in pharmaceuticals is based in U.S
- Introduction of new drugs is a major determinant in profitability; the longer a drug is on the market, the lower its return on sales

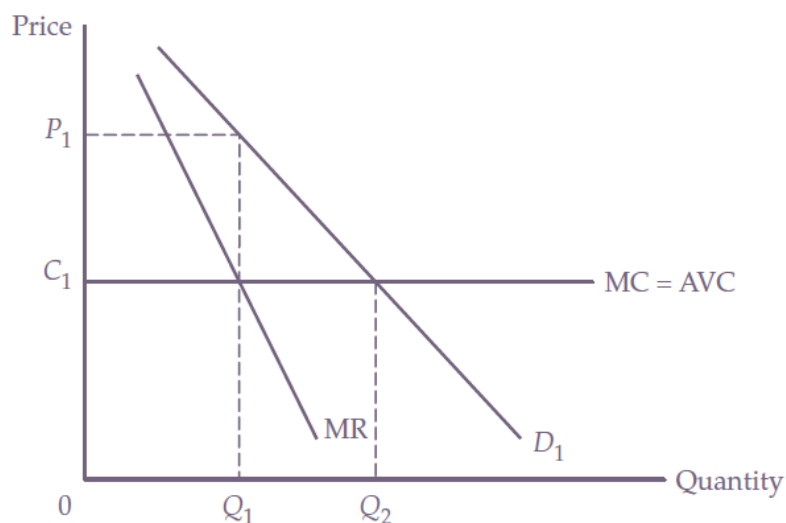
Orphan Drugs

- Pharma protects its drugs through patents, which provide exclusive rights to production of the drug, usually for 20 years
- But the long development period for a drug, typically 12-15 years, means the market benefit of the drug is only 5-8 years
- Exception: when firms pursue "orphan drugs," those used to treat rare diseases but which have limited commercial value; firm receives the exclusive right to manufacture

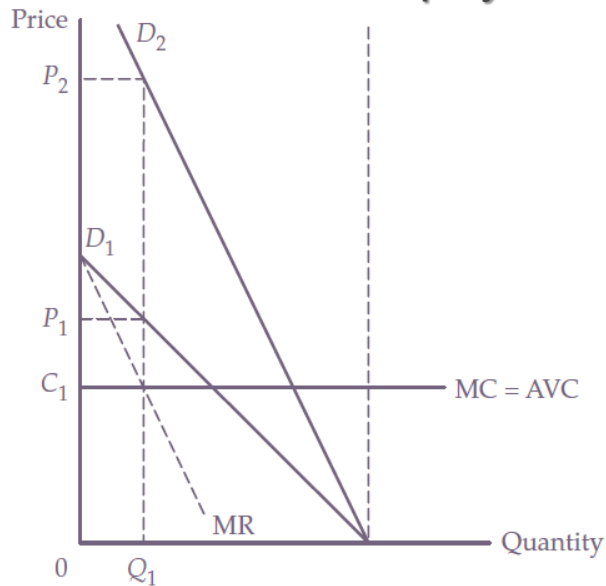
Impact of Patents on Drug Prices

- Patents of drugs distort drug prices, limit treatment options for individuals who do not have the means to pay, and cause American consumers to pay too much for their prescription meds
- Lower prices on name brand drugs in Canada
- The awarding of a patent provides the innovator with monopoly power – to limit availability and set prices above the marginal cost of production

Pricing a Patented Drug



Impact of Insurance on Monopoly Pricing



Pharmaceutical Pricing Issues

- The cost of producing a modern drug is high, because of high expenditures on R&D
- Are new drugs worth the high cost?
- If drug therapy reduces the need for more expensive treatments such as surgery, then it may be
- Appropriate use of pharmaceuticals can prevent or slow the progression of certain diseases

Advertising & Promotion

- Pharma industry spent \$27 billion on marketing & promotion in 2010, 70% of which was free samples and promos to physicians
- Pharma firms spend twice on administration & marketing what they spend on R&D
- New drugs may sell at 3-6 times higher than their costs of production
- Most sales efforts directed at providers, but increasingly, direct to consumer (DTC) ads

The Role of Government

- The FDA has been criticized as too cautious in the regulatory processing, causing delays in approval of new drugs, worried about:
 - Type I error – mistakenly allowing a harmful drug onto the market before fully tested (ex: thalidomide, kept out of U.S. market, but allowed in Europe, causing birth deformities)
 - Type II error – delaying a drug from market until its safety and efficacy are understood (reduces competition, raises costs)
 - Type I highly visible; Type II not

Future Directions for the Industry

- Pharma widely criticized for high markups, high profits margins, & high and rising prices on most popular products
- Price controls on prescription drugs in Canada have resulted in substantially lower prices, about 25% at wholesale level
- Since Canadian price controls were adopted, no new pharma products developed there
- Research conflicting on whether U.S. prices highest

International Issues

- Supporting pharma R&D requires incentives that reach globally
- Pharma R&D spending creates a cost-allocation problem; how much is attributable to one specific country?
- Most direct way to cover global joint costs is allow the patent holder to charge different prices in different countries