development of new drugs. With the passage of the Pure Food and Drug Act of 1906, this office took on its familiar role in regulating medications.

The Durham-Humphrey Amendment (1951) defined prescription drugs as drugs that must be administered under the supervision of a physician. In 1962, the Kefauver-Harris Amendment (Box 4-3) was enacted in response to thalidomide use during pregnancy and the drug's direct link to birth defects. This act requires drug manufacturers to show product effectiveness and safety, to report adverse events to the FDA, and to ensure that any advertisements to physicians disclose a product's risks and benefits.

The **Controlled Substances Act** of 1970 established the **Drug Enforcement Administration (DEA).** This law provided the legal foundation for preventing abuse of drugs and other substances. The DEA regulates the manufacture and distribution of controlled drugs (narcotics, stimulants, depressants, hallucinogens, and anabolic steroids) as well as the substances used in their production.)

The Orphan Drug Act of 1983 was established to facilitate the development of drugs for rare diseases (i.e., diseases that affect fewer than 1 in 200,000 people). Pharmaceutical manufacturers had been reluctant to produce these drugs because of poor return on investment. In addition, these drugs were often expensive for patients. The Orphan Drug Act encouraged the development of these "orphan" drugs by guaranteeing marketing exclusivity, tax credits, and waiver of other fees.

THE FDA AND DRUG DEVELOPMENT

The FDA was created to maintain public safety by establishing guidelines and regulations for food quality and drug development and distribution. The FDA evaluates premarket drugs through its Center for Drug Evaluation and Research (CDER). The Center's goals are to ensure that beneficial drug products are safe, available, and labeled with information on risks and benefits. The FDA approves a drug when it deems that the benefits of the drug outweigh the risks for the intended population and use. Once a drug is approved by the FDA, it is added to the *United States Pharmacopoeia/National Formulary,* or *USP/NF,* which is a comprehensive listing of all approved drugs in the United States.

All drugs must be proven safe and effective before they can be approved and marketed. This means that the drugs must perform the indicated action without causing unacceptable harm. For example, one medication may work to eliminate lung cancer; however, it may also cause many patients to suffer cardiac arrest. The benefit is therefore not worth the risk.

The FDA requires that drugs be scientifically researched. The FDA insists on high standards of scientific research, so it may take 8 years or longer for a company to gain approval of a drug, even if that drug is approved and sold in another country. Each drug must go through extensive development and clinical trials. Since 1997, however, the FDA has had the authority to accelerate their review and approval process (to as quickly as 6 months) for drugs needed by patients who are in a critical or life-threatening stage of illness.

CRITICAL THINKING

Mr. Dupee is upset that he is unable to obtain a drug in the United States. He knows of a website from which he can order the medication from Mexico. What are the potential dangers of ordering a drug from another country? How would you discuss this with him?

BOX 4.3 Amendments to the Food, Drug, and Cosmetic Act of 1938

Durham-Humphrey Amendment of 1951

- Defines which types of drugs cannot be used without medical supervision
- Limits sale of these drugs to prescription only by a medical professional
- All other drugs available without prescription

Kefauver-Harris Drug Amendments

- Requires drug makers to prove their drug works before approval for sale
- The Advisory Committee on Investigation Drugs advises the FDA on product approval and policy making