The word pharmacy is derived from its root word pharma which was a term used since the 15th–17th centuries. However, the original Greek roots from pharmakos imply sorcery or even poison. In addition to pharma responsibilities, the pharma offered general medical advice and a range of services that are now performed solely by other specialist practitioners, such as surgery and midwifery. The pharma (as it was referred to) often operated through a retail shop which, in addition to ingredients for medicines, sold tobacco and patent medicines. Often the place that did this was called an apothecary and several languages have this as the dominant term, though their practices are more akin to a modern pharmacy, in English the term apothecary would today be seen as outdated or only approproriate if herbal remedies were on offer to a large extent. The pharmas also used many other herbs not listed. The Greek word Pharmakeia (Greek: φαρμακε■α) derives from pharmakon (φ■ρμακον), meaning "drug", "medicine" (or "poison").[n 1]

Pharmacists are healthcare professionals with specialised education and training who perform various roles to ensure optimal health outcomes for their patients through the quality use of medicines. Pharmacists may also be small-business proprietors, owning the pharmacy in which they practice. Since pharmacists know about the mode of action of a particular drug, and its metabolism and physiological effects on the human body in great detail, they play an important role in optimisation of a drug treatment for an individual.

A Pharmacy Technician in the UK is considered a health care professional and often does not work under the direct supervision of a pharmacist (if employed in a hospital pharmacy) but instead is supervised and managed by other senior pharmacy technicians. In the UK the role of a PhT has grown and responsibility has been passed on to them to manage the pharmacy department and specialised areas in pharmacy practice allowing pharmacists the time to specialise in their expert field as medication consultants spending more time working with patients and in research. A pharmacy technician once qualified has to register as a professional on the General Pharmaceutical Council (GPhC) register. The GPhC is the governing body for pharmacy health care professionals and this is who regulates the practice of pharmacists and pharmacy technicians.

In Ancient Greece, Diocles of Carystus (4th century BC) was one of several men studying the medicinal properties of plants. He wrote several treatises on the topic. The Greek physician Pedanius Dioscorides is famous for writing a five volume book in his native Greek Περ■ ■λης ιατρικ■ς in the 1st century AD. The Latin translation De Materia Medica (Concerning medical substances) was used a basis for many medieval texts, and was built upon by many middle eastern scientists during the Islamic Golden Age. The title coined the term materia medica.

In Japan, at the end of the Asuka period (538–710) and the early Nara period (710–794), the men who fulfilled roles similar to those of modern pharmacists were highly respected. The place of pharmacists in society was expressly defined in the Taih■ Code (701) and re-stated in the Y■r■ Code (718). Ranked positions in the pre-Heian Imperial court were established; and this organizational structure remained largely intact until the Meiji Restoration (1868). In this highly stable hierarchy, the pharmacists—and even pharmacist assistants—were assigned status superior to all others in health-related fields such as physicians and acupuncturists. In the Imperial household, the pharmacist was even ranked above the two personal physicians of the Emperor.

The advances made in the Middle East in botany and chemistry led medicine in medieval Islam substantially to develop pharmacology. Muhammad ibn Zakar■ya R■zi (Rhazes) (865–915), for instance, acted to promote the medical uses of chemical compounds. Abu al-Qasim al-Zahrawi (Abulcasis) (936–1013) pioneered the preparation of medicines by sublimation and distillation. His Liber servitoris is of particular interest, as it provides the reader with recipes and explains how to prepare the `simples' from which were compounded the complex drugs then generally used. Sabur Ibn Sahl (d 869), was, however, the first physician to initiate pharmacopoedia, describing a large variety of drugs and remedies for ailments. Al-Biruni (973–1050) wrote one of the most valuable Islamic works on

pharmacology, entitled Kitab al-Saydalah (The Book of Drugs), in which he detailed the properties of drugs and outlined the role of pharmacy and the functions and duties of the pharmacist. Avicenna, too, described no less than 700 preparations, their properties, modes of action, and their indications. He devoted in fact a whole volume to simple drugs in The Canon of Medicine. Of great impact were also the works by al-Maridini of Baghdad and Cairo, and Ibn al-Wafid (1008–1074), both of which were printed in Latin more than fifty times, appearing as De Medicinis universalibus et particularibus by 'Mesue' the younger, and the Medicamentis simplicibus by 'Abenguefit'. Peter of Abano (1250–1316) translated and added a supplement to the work of al-Maridini under the title De Veneris. Al-Muwaffaq's contributions in the field are also pioneering. Living in the 10th century, he wrote The foundations of the true properties of Remedies, amongst others describing arsenious oxide, and being acquainted with silicic acid. He made clear distinction between sodium carbonate and potassium carbonate, and drew attention to the poisonous nature of copper compounds, especially copper vitriol, and also lead compounds. He also describes the distillation of sea-water for drinking.[verification needed]

In Europe there are old pharmacies still operating in Dubrovnik, Croatia, located inside the Franciscan monastery, opened in 1317; and in the Town Hall Square of Tallinn, Estonia, dating from at least 1422. The oldest is claimed to have been set up in 1221 in the Church of Santa Maria Novella in Florence, Italy, which now houses a perfume museum. The medieval Esteve Pharmacy, located in Llívia, a Catalan enclave close to Puigcerdà, also now a museum, dates back to the 15th century, keeping albarellos from the 16th and 17th centuries, old prescription books and antique drugs.

In most countries, the dispensary is subject to pharmacy legislation; with requirements for storage conditions, compulsory texts, equipment, etc., specified in legislation. Where it was once the case that pharmacists stayed within the dispensary compounding/dispensing medications, there has been an increasing trend towards the use of trained pharmacy technicians while the pharmacist spends more time communicating with patients. Pharmacy technicians are now more dependent upon automation to assist them in their new role dealing with patients' prescriptions and patient safety issues.

Because of the complexity of medications including specific indications, effectiveness of treatment regimens, safety of medications (i.e., drug interactions) and patient compliance issues (in the hospital and at home) many pharmacists practicing in hospitals gain more education and training after pharmacy school through a pharmacy practice residency and sometimes followed by another residency in a specific area. Those pharmacists are often referred to as clinical pharmacists and they often specialize in various disciplines of pharmacy. For example, there are pharmacists who specialize in hematology/oncology, HIV/AIDS, infectious disease, critical care, emergency medicine, toxicology, nuclear pharmacy, pain management, psychiatry, anti-coagulation clinics, herbal medicine, neurology/epilepsy management, pediatrics, neonatal pharmacists and more.

Hospital pharmacies can often be found within the premises of the hospital. Hospital pharmacies usually stock a larger range of medications, including more specialized medications, than would be feasible in the community setting. Most hospital medications are unit-dose, or a single dose of medicine. Hospital pharmacists and trained pharmacy technicians compound sterile products for patients including total parenteral nutrition (TPN), and other medications given intravenously. This is a complex process that requires adequate training of personnel, quality assurance of products, and adequate facilities. Several hospital pharmacies have decided to outsource high risk preparations and some other compounding functions to companies who specialize in compounding. The high cost of medications and drug-related technology, combined with the potential impact of medications and pharmacy services on patient-care outcomes and patient safety, make it imperative that hospital pharmacies perform at the highest level possible.

Pharmacists provide direct patient care services that optimizes the use of medication and promotes health, wellness, and disease prevention. Clinical pharmacists care for patients in all health care settings, but the clinical pharmacy movement initially began inside hospitals and clinics. Clinical

pharmacists often collaborate with physicians and other healthcare professionals to improve pharmaceutical care. Clinical pharmacists are now an integral part of the interdisciplinary approach to patient care. They often participate in patient care rounds drug product selection.

The clinical pharmacist's role involves creating a comprehensive drug therapy plan for patient-specific problems, identifying goals of therapy, and reviewing all prescribed medications prior to dispensing and administration to the patient. The review process often involves an evaluation of the appropriateness of the drug therapy (e.g., drug choice, dose, route, frequency, and duration of therapy) and its efficacy. The pharmacist must also monitor for potential drug interactions, adverse drug reactions, and assess patient drug allergies while designing and initiating a drug therapy plan.

In the U.S. federal health care system (including the VA, the Indian Health Service, and NIH) ambulatory care pharmacists are given full independent prescribing authority. In some states such North Carolina and New Mexico these pharmacist clinicians are given collaborative prescriptive and diagnostic authority. In 2011 the board of Pharmaceutical Specialties approved ambulatory care pharmacy practice as a separate board certification. The official designation for pharmacists who pass the ambulatory care pharmacy specialty certification exam will be Board Certified Ambulatory Care Pharmacist and these pharmacists will carry the initials BCACP.

Consultant pharmacy practice focuses more on medication regimen review (i.e. "cognitive services") than on actual dispensing of drugs. Consultant pharmacists most typically work in nursing homes, but are increasingly branching into other institutions and non-institutional settings. Traditionally consultant pharmacists were usually independent business owners, though in the United States many now work for several large pharmacy management companies (primarily Omnicare, Kindred Healthcare and PharMerica). This trend may be gradually reversing as consultant pharmacists begin to work directly with patients, primarily because many elderly people are now taking numerous medications but continue to live outside of institutional settings. Some community pharmacies employ consultant pharmacists and/or provide consulting services.

Since about the year 2000, a growing number of Internet pharmacies have been established worldwide. Many of these pharmacies are similar to community pharmacies, and in fact, many of them are actually operated by brick-and-mortar community pharmacies that serve consumers online and those that walk in their door. The primary difference is the method by which the medications are requested and received. Some customers consider this to be more convenient and private method rather than traveling to a community drugstore where another customer might overhear about the drugs that they take. Internet pharmacies (also known as online pharmacies) are also recommended to some patients by their physicians if they are homebound.

While most Internet pharmacies sell prescription drugs and require a valid prescription, some Internet pharmacies sell prescription drugs without requiring a prescription. Many customers order drugs from such pharmacies to avoid the "inconvenience" of visiting a doctor or to obtain medications which their doctors were unwilling to prescribe. However, this practice has been criticized as potentially dangerous, especially by those who feel that only doctors can reliably assess contraindications, risk/benefit ratios, and an individual's overall suitability for use of a medication. There also have been reports of such pharmacies dispensing substandard products.

Of particular concern with Internet pharmacies is the ease with which people, youth in particular, can obtain controlled substances (e.g., Vicodin, generically known as hydrocodone) via the Internet without a prescription issued by a doctor/practitioner who has an established doctor-patient relationship. There are many instances where a practitioner issues a prescription, brokered by an Internet server, for a controlled substance to a "patient" s/he has never met.[citation needed] In the United States, in order for a prescription for a controlled substance to be valid, it must be issued for a legitimate medical purpose by a licensed practitioner acting in the course of legitimate doctor-patient relationship. The

filling pharmacy has a corresponding responsibility to ensure that the prescription is valid. Often, individual state laws outline what defines a valid patient-doctor relationship.

In the United States, there has been a push to legalize importation of medications from Canada and other countries, in order to reduce consumer costs. While in most cases importation of prescription medications violates Food and Drug Administration (FDA) regulations and federal laws, enforcement is generally targeted at international drug suppliers, rather than consumers. There is no known case of any U.S. citizens buying Canadian drugs for personal use with a prescription, who has ever been charged by authorities.

Pharmacy informatics is the combination of pharmacy practice science and applied information science. Pharmacy informaticists work in many practice areas of pharmacy, however, they may also work in information technology departments or for healthcare information technology vendor companies. As a practice area and specialist domain, pharmacy informatics is growing quickly to meet the needs of major national and international patient information projects and health system interoperability goals. Pharmacists in this area are trained to participate in medication management system development, deployment and optimization.

Specialty pharmacies supply high cost injectable, oral, infused, or inhaled medications that are used for chronic and complex disease states such as cancer, hepatitis, and rheumatoid arthritis. Unlike a traditional community pharmacy where prescriptions for any common medication can be brought in and filled, specialty pharmacies carry novel medications that need to be properly stored, administered, carefully monitored, and clinically managed. In addition to supplying these drugs, specialty pharmacies also provide lab monitoring, adherence counseling, and assist patients with cost-containment strategies needed to obtain their expensive specialty drugs. It is currently the fastest growing sector of the pharmaceutical industry with 19 of 28 newly FDA approved medications in 2013 being specialty drugs.

In most jurisdictions (such as the United States), pharmacists are regulated separately from physicians. These jurisdictions also usually specify that only pharmacists may supply scheduled pharmaceuticals to the public, and that pharmacists cannot form business partnerships with physicians or give them "kickback" payments. However, the American Medical Association (AMA) Code of Ethics provides that physicians may dispense drugs within their office practices as long as there is no patient exploitation and patients have the right to a written prescription that can be filled elsewhere. 7 to 10 percent of American physicians practices reportedly dispense drugs on their own.

In some rural areas in the United Kingdom, there are dispensing physicians who are allowed to both prescribe and dispense prescription-only medicines to their patients from within their practices. The law requires that the GP practice be located in a designated rural area and that there is also a specified, minimum distance (currently 1.6 kilometres) between a patient's home and the nearest retail pharmacy. This law also exists in Austria for general physicians if the nearest pharmacy is more than 4 kilometers away, or where none is registered in the city.

The reason for the majority rule is the high risk of a conflict of interest and/or the avoidance of absolute powers. Otherwise, the physician has a financial self-interest in "diagnosing" as many conditions as possible, and in exaggerating their seriousness, because he or she can then sell more medications to the patient. Such self-interest directly conflicts with the patient's interest in obtaining cost-effective medication and avoiding the unnecessary use of medication that may have side-effects. This system reflects much similarity to the checks and balances system of the U.S. and many other governments.[citation needed]

In the coming decades, pharmacists are expected to become more integral within the health care system. Rather than simply dispensing medication, pharmacists are increasingly expected to be compensated for their patient care skills. In particular, Medication Therapy Management (MTM)

includes the clinical services that pharmacists can provide for their patients. Such services include the thorough analysis of all medication (prescription, non-prescription, and herbals) currently being taken by an individual. The result is a reconciliation of medication and patient education resulting in increased patient health outcomes and decreased costs to the health care system.

This shift has already commenced in some countries; for instance, pharmacists in Australia receive remuneration from the Australian Government for conducting comprehensive Home Medicines Reviews. In Canada, pharmacists in certain provinces have limited prescribing rights (as in Alberta and British Columbia) or are remunerated by their provincial government for expanded services such as medications reviews (Medschecks in Ontario). In the United Kingdom, pharmacists who undertake additional training are obtaining prescribing rights and this is because of pharmacy education. They are also being paid for by the government for medicine use reviews. In Scotland the pharmacist can write prescriptions for Scottish registered patients of their regular medications, for the majority of drugs, except for controlled drugs, when the patient is unable to see their doctor, as could happen if they are away from home or the doctor is unavailable. In the United States, pharmaceutical care or clinical pharmacy has had an evolving influence on the practice of pharmacy. Moreover, the Doctor of Pharmacy (Pharm. D.) degree is now required before entering practice and some pharmacists now complete one or two years of residency or fellowship training following graduation. In addition, consultant pharmacists, who traditionally operated primarily in nursing homes are now expanding into direct consultation with patients, under the banner of "senior care pharmacy."

The two symbols most commonly associated with pharmacy in English-speaking countries are the mortar and pestle and the ℞ (recipere) character, which is often written as "Rx" in typed text. The show globe was also used until the early 20th century. Pharmacy organizations often use other symbols, such as the Bowl of Hygieia which is often used in the Netherlands, conical measures, and caduceuses in their logos. Other symbols are common in different countries: the green Greek cross in France, Argentina, the United Kingdom, Belgium, Ireland, Italy, Spain, and India, the increasingly rare Gaper in the Netherlands, and a red stylized letter A in Germany and Austria (from Apotheke, the German word for pharmacy, from the same Greek root as the English word 'apothecary').