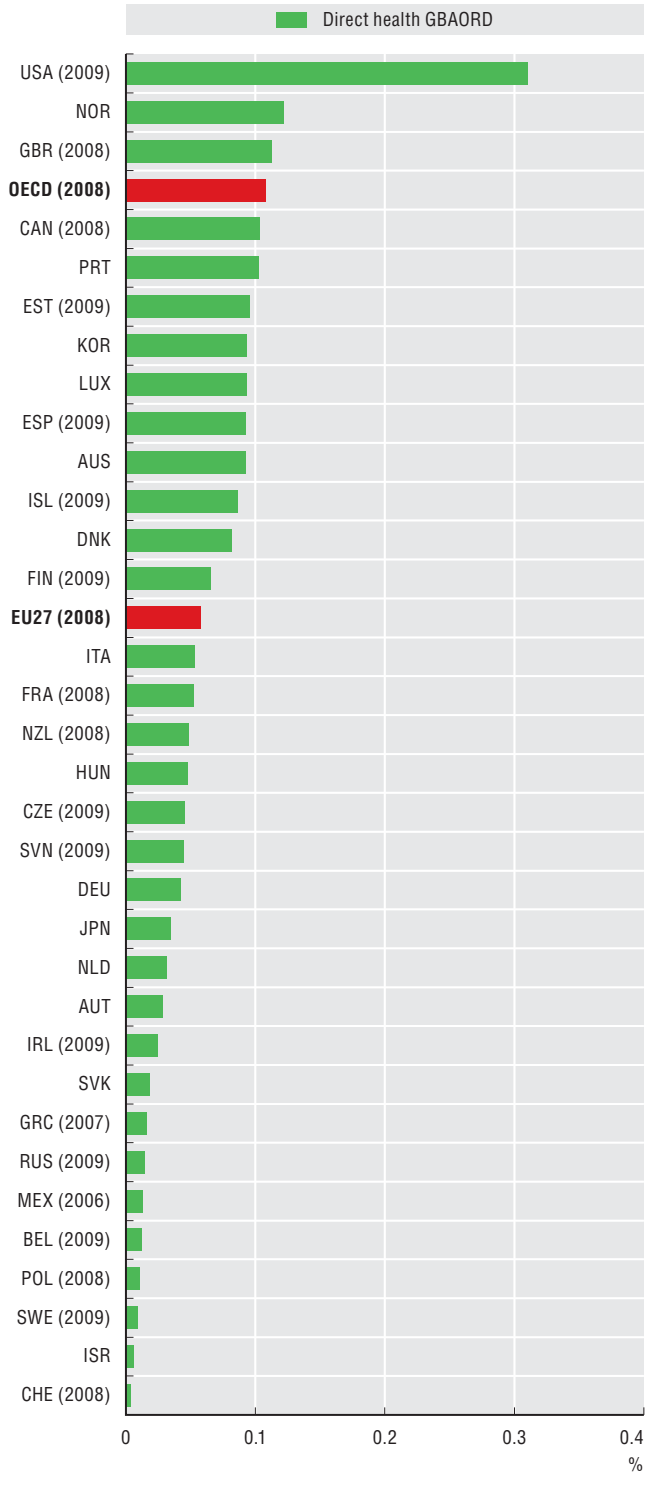
2. Health innovation

Health R&D in government budget appropriations or outlays for R&D, 2010

As a percentage of GDP



Source: OECD, Research and Development Database, May 2011.

StatLink http://dx.doi.org/10.1787/888932486716

OECD countries are faced with the health-care challenges of ageing populations and others, such as increasingly drug-resistant diseases and the risk of global pandemics. Innovation is a critical means of improving the capacity of health systems to address these problems while containing escalating costs. The public sector plays a significant role alongside business and non-profit organisations, by supporting R&D directly but also through the procurement of new treatments resulting from R&D. Government budget appropriations or outlays for R&D (GBAORD) indicate that direct government support of health-related R&D in OECD countries was about 0.1% of their combined GDP in 2008. The United States is by far the largest funder in both absolute and relative terms, at just over 0.3% of GDP spent on health R&D.

However, when data from additional information are used to adjust for institutional differences in the funding of health R&D, the United States ceases to be such a strong outlier. For example, Germany's health R&D goes from 0.05% to nearly 0.15% while for Austria it increases from 0.03% to 0.25% as a percentage of GDP.

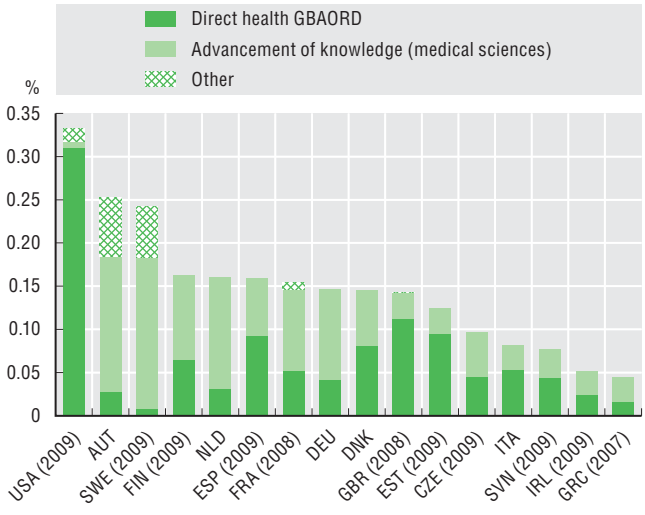
Filings for patents in medical technologies increased at an average annual rate of 5% in the 2000s, at the same pace as total patent applications filed under the Patent Cooperation Treaty (PCT), while pharmaceutical patents remained constant. In relative terms, patents in pharmaceuticals represented 7.5% of all patents in 2007-09, a severe drop from more than 11% in the late 1990s, whereas medical technology patents remained an average 8% of total patents. In the late 2000s, the United States led in health patenting, with more than 40% of health-related PCT patent applications. The BRIICS countries (Brazil, the Russian Federation, India, Indonesia, China and South Africa) made an increasing number of PCT filings in pharmaceuticals to reach more than 7% of all such patents.

Definitions

The International Patent Classification (IPC) was used to identify health-related inventions among patent applications filed under the Patent Cooperation Treaty (PCT) according to the technology classification presented in Schmoch (2008). *Patents in medical technologies* are defined by classes A61 [B, C, D, F, G, H, J, L, M, N] and H05G. Patents in pharmaceuticals cover class A61K, excluding Codes A61K8/* (cosmetics). Although medical technology is generally associated with high technology, it covers less sophisticated products and technologies such as operating tables, massage devices, bandages, etc. *Pharmaceuticals* are considered an area of application rather than a specific technology, even though the key sub-class A61K is primarily organised by technology (*e.g.* medicinal preparations containing inorganic active ingredients). For further details on the IPC, see the World Intellectual Property Organization (WIPO) website at *www.wipo.int/ipcpub/*.

Public funding of health-related R&D, 2010

As a percentage of GDP

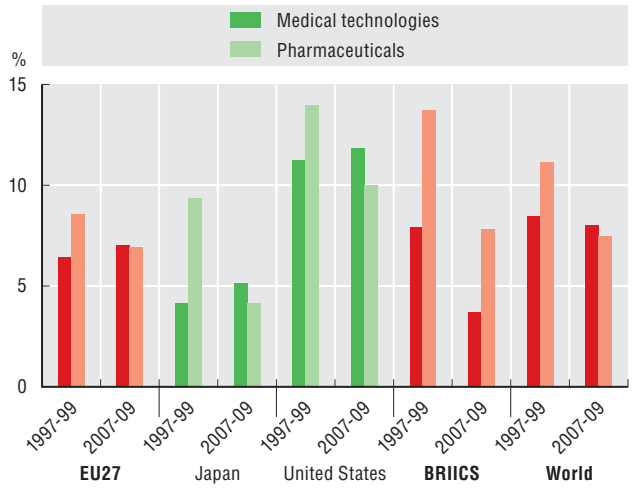


Source: OECD calculations based on the Research and Development Database and national sources, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932486735

Health-related patents, 1997-99 and 2007-09

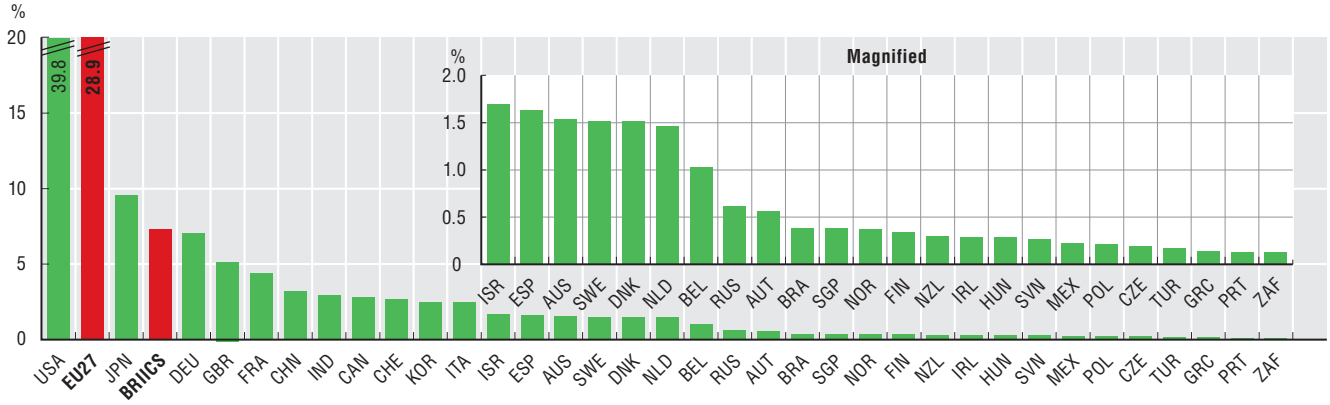
As a percentage of total PCT patent applications



Source: OECD, Patent Database, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932486754

Countries' share of pharmaceutical patents filed under the PCT, 2007-09



Source: OECD, Patent Database, May 2011. See chapter notes.

StatLink http://dx.doi.org/10.1787/888932486773

Measurability

Public funding of health R&D is difficult to measure owing to institutional complexity and diversity; it may be publicly or privately funded and be carried out in firms, universities, hospitals and private not-for-profit institutions. Government budget appropriations or outlays for R&D (GBAORD) can be broken down by socio-economic objective, such as the protection and improvement of public health, as defined by the OECD *Frascati Manual*. The GBAORD health category is used here as a proxy for total central government funding of health-related R&D. However, this category only covers programmes for which health is the primary objective. Furthermore, the classification of funding depends on how governments present their R&D priorities as well as on the formal mandate of the institutions concerned. Arrangements for funding R&D in hospitals also vary. To address some of these limitations and to provide a more complete picture of health-related R&D, funding of medical sciences via non-oriented research and general university funds is included when available as are other relevant funds, notably general support for R&D in hospitals.