# How do countries regulate and purchase diagnostic imaging equipment to reduce "supplier-induced demand" failures?

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Background:

One of the main causes of the growing increase in expenditure on health is the development of new and expensive technologies, and their adoption by health systems. (Sorenson, Drummond & Khan, 2013). In the health services market there is asymmetry in information, as the patient has no professional knowledge to determine his exact demand for services. The patient, therefore places the responsibility for the decision on the treatment in the hands of the doctor. This situation may create a market failure "supplier-induced demand" when the provider leads the patient to consume inappropriate health care or in unnecessary quantity, in order to increase its own income. Health care systems in many countries are concerned that health care providers purchase (and use) diagnostic imaging equipment (DIE) such as MRI, CT and PET, in quantities that exceed the need.

Objectives:

1. To review models of adoption and purchase of DIE in high-income countries and their effects on quality of care, access to services, and health expenditures.
2. To recommend “best practices” that enable the adoption of DIE at a rate that does not increase the expenditure on health beyond what is currently accepted - and without compromising quality and access to care.

Methods

Qualitative. The first step included a literature review on planning and regulatory mechanisms for procurement of health technologies, with an emphasis on DIE. The second step comprised of building case studies collecting up-to-date data from 20 purposefully sampled countries. Sampling criteria attempted to represent a broad variety of approaches. Researchers from the sampled countries filled a questionnaire built specifically for this study. Data were analyzed, and a cross-country comparison was performed.

Findings

We found three main mechanisms that curbs the purchase (or use of) DIE: (1) regulation (requirement of certificates of need, licenses or approvals for the purchase) and direct restrictions on the quantity and quality of the device; (2) financial tools such as payment mechanisms, limited and conditional budgets, and caps on income or services; and (3) centralized procurement. In addition, planning has been found to be a very significant part in regulating procurement and use of DIE.

Discussion and conclusions

Most countries plan the DIE market with clear criteria. Plans are a precondition for regulating the DIE market. Most countries implement a combination of mechanisms. The most common and effective mechanism implemented is financial tools. Countries with health services based systems (NHS) implement more regulation mechanisms than countries based on statutory health insurance systems. In the later, regulated competition seems to reduce the need of regulations. Increasingly countries are adopting centralized procurement.