Advanced Certificate in Health Policy Analysis

Health Economics and Financing

Health economics studies how resources are allocated within health systems and the impact of those allocations on population health. Central to this discipline are concepts that describe the behavior of individuals, providers, insurers, and governments when faced with limited resources. Understanding these terms enables analysts to evaluate policies, design financing mechanisms, and predict outcomes. The following exposition presents the most frequently encountered vocabulary, illustrated with examples and practical applications, while also highlighting common challenges that arise in real-world settings.

The first fundamental concept is opportunity cost. This refers to the value of the best alternative foregone when a resource is used for a particular health intervention. For instance, if a hospital spends $1 million on a new MRI scanner, the opportunity cost is the health services that could have been delivered with that $1 million, such as additional primary-care visits or preventive vaccinations. Recognising opportunity cost is essential when comparing programs, because it forces decision-makers to consider trade-offs rather than focusing solely on financial outlays. A frequent challenge is that opportunity costs are often hidden or difficult to quantify, especially when benefits accrue over long periods or across multiple sectors.

Closely related is the notion of marginal analysis. Marginal analysis examines the additional benefit or cost incurred by a small change in the level of an activity. In health financing, the marginal cost of providing one extra dose of a vaccine can be lower than the average cost because of economies of scale. Conversely, the marginal benefit of extending a treatment beyond a certain point may diminish, a phenomenon known as diminishing returns. Applying marginal analysis helps policymakers allocate funds where the incremental health gain per dollar spent is greatest. However, data on marginal effects are often scarce, requiring sophisticated statistical techniques to estimate them accurately.

Another pivotal term is cost-effectiveness analysis (CEA). CEA compares the relative costs and outcomes of two or more interventions, typically expressing results as a cost per unit of health gain, such as cost per life-year saved or cost per quality-adjusted life year (QALY) gained. For example, a CEA might reveal that a community-based hypertension program costs $500 per QALY, while a new drug therapy costs $2 500 per QALY. In many health systems, interventions with a cost per QALY below a certain threshold (often linked to per-capita GDP) are deemed acceptable. Practical application of CEA requires careful measurement of both costs (direct, indirect, and intangible) and health outcomes, and it must confront methodological challenges such as discounting future benefits and handling uncertainty.

The concept of quality-adjusted life year itself combines quantity and quality of life into a single metric. One QALY equals one year of life in perfect health; years lived with disability are weighted by a factor between 0 (equivalent to death) and 1. For instance, a year lived with a health state valued at 0.6 Contributes 0.6 QALYs. This metric enables comparison across diverse disease areas, facilitating resource allocation decisions. Critics argue that QALYs may undervalue interventions for the elderly or those with chronic disabilities, raising ethical concerns about equity.

A related measure is disability-adjusted life year (DALY). DALYs count the years of healthy life lost due to premature mortality and morbidity, essentially the inverse of QALYs. A DALY is calculated as the sum of years of life lost (YLL) and years lived with disability (YLD). In global health financing, DALYs are frequently used to prioritize interventions that reduce the burden of disease in low-income settings. The use of DALYs can be controversial because it incorporates assumptions about disability weights that may not reflect cultural preferences.

When discussing financing, the term insurance risk pooling is indispensable. Risk pooling aggregates the health expenditures of many individuals so that the financial impact of illness is shared across the group. In a national health insurance scheme, contributions (premiums or taxes) are collected from the entire population, and the pooled funds are used to pay for services when members become sick. This arrangement reduces the risk of catastrophic out-of-pocket spending for any single individual. However, effective risk pooling depends on broad participation; adverse selection—where sicker individuals are more likely to enroll—can undermine financial sustainability.

Adverse selection occurs when individuals with higher expected health costs are more likely to purchase insurance, while healthier individuals opt out. This leads to a risk pool with higher average costs, which may force insurers to raise premiums, prompting even more healthy people to leave—a spiral known as the "death spiral." To mitigate adverse selection, many systems employ mandatory enrollment, community rating, or subsidies for low-income groups. The challenge lies in balancing equity with incentives, as overly generous subsidies can distort market signals and create inefficiencies.

Another key term is moral hazard. Moral hazard refers to the tendency of insured individuals to consume more health services than they would if they bore the full cost, because the price they pay is reduced by insurance coverage. For example, a patient with comprehensive coverage might request unnecessary diagnostic tests, inflating overall expenditures. Insurers counteract moral hazard through cost-sharing mechanisms such as co-payments, deductibles, or prior authorization. While these tools can curb over-utilization, they also risk deterring necessary care, especially among low-income patients.

The concept of provider payment mechanisms describes how health care providers are reimbursed for services rendered. Common mechanisms include fee-for-service (FFS), capitation, diagnosis-related groups (DRGs), and bundled payments. Under FFS, providers are paid a set amount for each service, which can encourage volume over value. Capitation provides a fixed per-patient payment, incentivizing efficiency but potentially leading to under-service. DRGs assign a fixed payment based on the patient's diagnosis, promoting cost control while preserving some incentive for quality. Bundled payments combine elements of FFS and capitation by paying a single amount for all services related to an episode of care. Choosing an appropriate payment mechanism is a central policy decision, as each system shapes provider behavior in distinct ways.

A related term is provider incentives. These are the financial and non-financial motivators designed to align provider behavior with health system goals, such as improving quality, expanding access, or containing costs. For instance, pay-for-performance programs reward physicians for meeting specific quality metrics, whereas shared savings arrangements allow hospitals to keep a portion of any cost reductions they achieve relative to a benchmark. Designing effective incentives requires careful measurement of performance,

avoidance of gaming, and consideration of potential unintended consequences, such as neglect of non-rewarded services.

The notion of health technology assessment (HTA) encompasses the systematic evaluation of the clinical effectiveness, cost-effectiveness, and broader impact of medical technologies, including drugs, devices, and procedures. HTA agencies, such as NICE in the United Kingdom or CADTH in Canada, generate evidence-based recommendations that inform coverage decisions. For example, an HTA may conclude that a new oncology drug provides modest survival benefits at a high cost per QALY, leading to a conditional reimbursement arrangement. Implementing HTA requires robust data infrastructure, transparent methodology, and stakeholder engagement to ensure acceptance and legitimacy.

An essential financing term is budget impact analysis (BIA). While CEA focuses on cost per health outcome, BIA estimates the financial consequences of adopting a new technology within a specific budget horizon, typically three to five years. A BIA might project that introducing a novel vaccine will increase annual health expenditures by $30 million but also reduce disease incidence, thereby generating downstream savings. Policymakers use BIA to assess affordability and to plan resource allocation. A common challenge is forecasting adoption rates and price negotiations, which can introduce substantial uncertainty into the analysis.

The term resource allocation captures the process of distributing scarce health resources across competing needs. Allocation decisions may be guided by explicit criteria—such as cost-effectiveness thresholds, equity weights, or disease burden—or by implicit political processes. For example, a government may allocate a larger share of its health budget to maternal and child health programs to address high infant mortality rates, even if those programs have a higher cost per QALY than other interventions. Balancing efficiency and equity remains a central dilemma in resource allocation, often requiring deliberative processes and stakeholder participation.

A fundamental principle in health financing is universal health coverage (UHC). UHC aims to ensure that all individuals receive the health services they need without suffering financial hardship. The three dimensions of UHC are population coverage, service coverage, and financial protection. For instance, a country may achieve near-universal enrollment in a national insurance scheme (population coverage), provide a comprehensive package of essential services (service coverage), and limit out-of-pocket payments to below a defined percentage of household income (financial protection). Implementing UHC involves designing sustainable revenue sources, expanding service delivery capacity, and monitoring equity outcomes.

Revenue collection mechanisms are described by terms such as tax-financed system, social health insurance (SHI), and private health insurance (PHI). In a tax-financed system, health care is funded primarily through general government revenues, often earmarked for health. An SHI model relies on payroll contributions from employees and employers, typically managed by a dedicated fund. PHI involves voluntary purchase of insurance policies, often with risk-adjusted premiums. Each model has distinct implications for risk pooling, equity, and administrative complexity. For example, tax-financed systems can achieve broad risk pooling but may be vulnerable to fiscal constraints, whereas PHI can promote competition but often leads to fragmented coverage.

The term pre-payment describes the practice of collecting funds before health services are needed, as opposed to payment at the point of care. Pre-payment reduces the likelihood of catastrophic expenses for individuals and enables the health system to plan resource use. Mechanisms such as payroll taxes, per-capita levies, or community-based insurance schemes exemplify pre-payment. A challenge is ensuring that pre-payment pools are sufficiently large to smooth risk across diverse populations, especially in settings with informal labor markets where contributions are hard to collect.

A related concept is risk adjustment. Risk adjustment modifies payments to providers or insurers based on the health status of the enrolled population, aiming to prevent adverse selection and to compensate for higher expected costs. For example, an insurer receiving a higher proportion of elderly enrollees may receive additional funds through a risk-adjusted formula. Implementing risk adjustment requires accurate data on diagnoses, demographic characteristics, and health utilization, and it can be technically demanding in low-resource environments.

The term catastrophic health expenditure refers to out-of-pocket spending that exceeds a defined threshold of household income or consumption, often set at 10 % of total expenditure or 40 % of non-food expenditure. Households experiencing catastrophic spending may be forced to cut back on essential needs, leading to impoverishment. Monitoring the incidence of catastrophic expenditures is a key indicator of financial protection under UHC. Policies such as fee waivers, caps on co-payments, or expanded insurance coverage aim to reduce this burden. However, measuring catastrophic spending accurately requires household survey data, which may be limited in frequency and scope.

Another key term is incremental cost-effectiveness ratio (ICER). The ICER is calculated as the difference in costs between two interventions divided by the difference in their health outcomes, typically expressed as cost per QALY gained. An ICER of $1 000 per QALY suggests that each additional QALY obtained by the new intervention costs $1 000 relative to the comparator. Decision-makers compare ICERs to willingness-to-pay thresholds to determine whether an intervention is “worth it.” Interpreting ICERs involves considering uncertainty (confidence intervals), the distribution of benefits across population groups, and the opportunity cost of alternative uses of the same funds.

The term budget constraint captures the limit on total resources available for health spending. In practical terms, a ministry of health may have a fixed annual budget that must be allocated across competing programs. The presence of a budget constraint forces trade-offs; for example, expanding a vaccination program may require reducing spending on tertiary care. Analytical tools such as linear programming or constrained optimization can help identify the allocation that maximizes health outcomes subject to the budget limit. A common difficulty is that political pressures can override analytically optimal allocations, leading to sub-optimal health gains.

The concept of elasticity of demand measures how the quantity of health services demanded responds to changes in price. Health care often exhibits inelastic demand because many services are essential and patients are willing to pay regardless of price. However, certain elective procedures or over-the-counter medications may be more price-responsive. Understanding elasticity assists policymakers in predicting the impact of price changes, such as co-payment adjustments, on utilization patterns. Empirical estimation of elasticity requires detailed utilization and price data, which may be unavailable in fragmented health

markets.

A closely related term is price elasticity of supply, which reflects how provider output changes in response to price variations. In a fee-for-service environment, higher reimbursement rates may induce providers to increase the volume of services offered, potentially leading to supply-induced demand. Conversely, capitation may dampen supply responsiveness, potentially risking under-provision. Policymakers must consider both demand- and supply-side elasticities when designing pricing reforms to avoid unintended shifts in service volumes.

The term externalities denotes costs or benefits that affect third parties not directly involved in a transaction. In health, positive externalities arise from vaccinations, where immunized individuals reduce disease transmission to others. Negative externalities can stem from pollution-related illnesses that impose costs on society. Economic analysis of externalities often involves assigning a monetary value to these spillover effects and incorporating them into cost-benefit calculations. Addressing externalities may require government intervention, such as subsidies for immunization or regulations to limit environmental hazards.

The idea of cost-benefit analysis (CBA) expands beyond CEA by expressing both costs and benefits in monetary terms, allowing direct comparison. For example, a CBA of a smoking-cessation program might calculate the monetary value of reduced healthcare costs, increased productivity, and premature mortality avoided, and compare this to the program's implementation costs. If benefits exceed costs, the program is considered socially beneficial. A major challenge in CBA is valuing health outcomes, which often requires willingness-to-pay studies or the use of statistical life values, both of which can be ethically contentious.

A term frequently encountered in financing discussions is fiscal space. Fiscal space refers to the capacity of a government to allocate additional resources to health without jeopardizing fiscal sustainability. Sources of fiscal space may include economic growth, reprioritization of existing expenditures, improved tax collection, borrowing, or efficiency gains. For instance, a country experiencing robust GDP growth may have greater fiscal space to expand its health budget. Assessing fiscal space involves macro-economic analysis, debt sustainability projections, and political feasibility assessments.

The concept of efficiency in health economics is divided into technical and allocative components. Technical efficiency occurs when a given set of inputs produces the maximum possible output, while allocative efficiency means that resources are deployed to produce the mix of services that best reflects societal preferences. An example of technical inefficiency is a hospital with under-utilized operating rooms, whereas allocative inefficiency could arise if a health system over-invests in high-technology tertiary care at the expense of primary-care services that generate higher health gains per dollar. Measuring efficiency often employs data envelopment analysis (DEA) or stochastic frontier analysis (SFA), but these methods require reliable input-output data.

A related term is productivity, which reflects the amount of health output generated per unit of input. In health care, productivity can be measured as the number of patients treated per physician hour, or the number of successful surgeries per operating theater. Productivity improvements can arise from technological innovation, better management practices, or workforce training. However, focusing solely on productivity may overlook quality considerations; increasing the number of procedures without maintaining

safety standards can be counterproductive.

The term equity captures the fairness of health outcomes and financial contributions across different population groups. Equity analysis examines whether certain groups—such as the poor, rural residents, or ethnic minorities—experience disproportionate barriers to accessing care or bear a larger share of health costs. The horizontal equity principle asserts that individuals with similar health needs should receive similar treatment, while vertical equity suggests that those with greater needs should receive more resources. Implementing equity-focused policies may involve progressive financing (higher contributions from higher-income groups), targeted subsidies, or geographic redistribution of health facilities. Monitoring equity requires disaggregated data, which can be limited in many health information systems.

A pivotal term in financing is tax incidence, which describes who ultimately bears the burden of a tax. In the context of health financing, a payroll tax may be levied on employers, employees, or both, but the economic incidence can shift depending on labor market conditions. Understanding tax incidence helps policymakers design financing mechanisms that are progressive and minimize distortionary effects on labor supply or consumption.

The concept of expenditure ceiling refers to a predetermined limit on the amount of money that can be spent on a specific health program or service category. Expenditure ceilings are used as a fiscal control tool to contain spending growth, especially in environments with constrained budgets. For example, a government may set a ceiling on the annual budget for specialty drugs. While ceilings can enforce discipline, they may also lead to rationing or delayed adoption of beneficial innovations if the ceiling is set too low.

A term that often appears in discussions of pharmaceutical financing is price regulation. Price regulation encompasses policies that set maximum prices for medicines, negotiate discounts, or use reference pricing to align domestic drug prices with those in other countries. For instance, a health authority may employ external reference pricing by benchmarking a new oncology drug against prices in three comparable markets. While price regulation can improve affordability, it may also discourage pharmaceutical companies from launching new products in markets with stringent controls, potentially limiting access to innovative therapies.

The notion of generic substitution involves replacing brand-name drugs with therapeutically equivalent generic versions, usually at lower cost. Policies that encourage generic substitution—through mandatory prescribing of generics, pharmacist substitution rights, or differential co-payments—can generate substantial savings for health systems. A challenge is ensuring that prescribers and patients trust the quality and efficacy of generics, which may require educational campaigns and robust regulatory oversight.

A related term is reference pricing, a system where a health insurer or payer sets a reimbursement level for a group of therapeutically similar drugs, and patients pay the difference if they choose a higher-priced product. For example, a reference price for a class of antihypertensives might be set at $10 per month; a brand drug priced at $20 would require the patient to pay the $10 excess. Reference pricing can incentivize manufacturers to lower prices but may also lead to market withdrawal of higher-priced products if they become unprofitable.

The term health technology pricing refers to the process of determining the price at which a new technology is offered to the market. Pricing strategies may include cost-plus pricing, value-based pricing, or price discrimination. Value-based pricing sets the price based on the estimated health benefits, often expressed as the ICER relative to a willingness-to-pay threshold. For instance, a drug that delivers an ICER of $20 000 per QALY in a high-income country may be priced higher there than in a low-income country where the threshold is lower. Aligning price with value poses methodological challenges, particularly in estimating long-term outcomes and accounting for budget impact.

A central concept for health system performance is health system resilience. Resilience denotes the capacity of a health system to absorb shocks—such as pandemics, natural disasters, or economic crises—while maintaining essential functions. Financing mechanisms that build reserve funds, flexible procurement processes, and diversified revenue streams enhance resilience. For example, a country that maintains a strategic stockpile of personal protective equipment and has a contingency financing line can respond more rapidly to an emerging infectious disease. Measuring resilience is complex, involving indicators of surge capacity, supply chain robustness, and governance structures.

The term risk-sharing agreements (also known as managed entry agreements) describes contracts between payers and manufacturers that link reimbursement to the real-world performance of a health technology. A typical agreement may involve a payment-by-results model, where the payer reimburses the manufacturer only if the drug achieves predetermined clinical outcomes. These arrangements can reduce payer exposure to uncertain benefits, especially for high-cost therapies with limited evidence at launch. However, they require robust data collection systems, clear outcome definitions, and mechanisms for dispute resolution.

A crucial term in the context of public-private collaboration is social health insurance (SHI) fund. An SHI fund is a quasi-autonomous entity that collects contributions, pools risks, and contracts with providers to deliver a defined benefit package. The fund may be governed by a board representing employers, employees, and the government. Effective SHI fund management hinges on actuarial soundness, transparent accounting, and efficient purchasing strategies. Challenges include ensuring provider competition, preventing fraud, and maintaining financial balance amid demographic shifts such as aging populations.

The concept of strategic purchasing involves using the purchasing function to influence provider behavior and improve health system performance. Strategic purchasing entails selecting providers based on quality and cost criteria, designing provider contracts that incorporate performance incentives, and using data to monitor outcomes. For instance, a health authority may implement a pay-for-performance scheme that rewards hospitals for reducing readmission rates. The success of strategic purchasing depends on the availability of high-quality data, the capacity to negotiate contracts, and the legal framework that supports accountability.

A term often associated with strategic purchasing is provider network. A provider network is a set of health care providers that have agreed to deliver services to members of a particular insurance plan under negotiated terms. Networks can be narrow (few providers) or broad (many providers), affecting access, cost, and quality. Narrow networks may generate lower costs due to stronger bargaining power, but they may also limit patient choice, raising equity concerns. Managing networks requires continuous monitoring of

provider performance and patient satisfaction.

The term cost-containment refers to policies and measures aimed at limiting the growth of health expenditures. Techniques include setting global budgets for hospitals, implementing utilization review committees, encouraging generic drug use, and promoting preventive care. While cost-containment is essential for fiscal sustainability, overly aggressive measures can compromise quality or deter needed innovations. Policymakers must balance short-term savings with long-term health system goals.

A complementary concept is value-based insurance design (VBID). VBID aligns patient cost-sharing with the clinical value of services, reducing co-payments for high-value interventions (e.G., Essential chronic disease medications) and increasing them for low-value services. By lowering financial barriers to effective care, VBID can improve adherence and health outcomes while containing costs. Designing VBID requires robust evidence on the value of services, which can be limited for newer technologies.

The term health equity funds denotes dedicated financial mechanisms that channel resources to underserved populations, often through subsidies or direct cash transfers. For example, a country may establish a health equity fund that provides free primary-care visits for low-income households, financed through general tax revenues. These funds aim to reduce financial barriers and improve access, yet they must be carefully targeted to avoid leakage to higher-income groups and to ensure sustainability.

A concept that intersects financing and service delivery is task shifting. Task shifting involves reallocating tasks from higher-qualified health workers (e.G., Physicians) to lower-qualified cadres (e.G., Nurses, community health workers) to improve efficiency and expand coverage. Financing task shifting may require revising salary structures, providing training subsidies, and adjusting payment mechanisms to reflect the new roles. While task shifting can enhance productivity and reduce costs, it raises concerns about quality assurance and professional resistance.

The term health accounts refers to systematic records of health expenditures, often used to track spending by source (government, private, donor), function (hospital, preventive services), and disease area. Health accounts enable policymakers to identify financing gaps, monitor trends, and assess the impact of policy reforms. The System of Health Accounts (SHA) provides an internationally recognized framework for compiling such data. However, compiling accurate health accounts can be challenging due to fragmented data sources and inconsistent reporting standards.

A related term is budgetary earmarking, which involves designating a portion of the health budget for specific programs or disease areas. Earmarking can protect funding for priority interventions, such as HIV/AIDS programs, from being reallocated to other uses. While earmarking provides political stability for targeted initiatives, it can reduce flexibility and hinder the reallocation of resources to emerging health needs.

The concept of ex-ante financing describes the provision of funds before a health event occurs, typically through insurance premiums, taxes, or prepaid vouchers. Ex-ante financing contrasts with ex-post financing, where payments are made after illness. Ex-ante mechanisms promote risk pooling and reduce the likelihood of catastrophic expenditures. Designing effective ex-ante financing requires accurate actuarial calculations

and mechanisms to ensure broad coverage, especially among informal sector workers.

Conversely, ex-post financing involves payments after health services are rendered, such as out-of-pocket payments or emergency cash transfers. Ex-post financing can be regressive, disproportionately affecting low-income households. Policymakers aiming for universal coverage generally prioritize ex-ante financing while establishing safety nets to mitigate ex-post burdens for vulnerable groups.

The term cost-sharing encompasses co-payments, deductibles, and coinsurance that shift a portion of health care costs to patients. Cost-sharing can discourage unnecessary utilization, but it may also deter needed care, especially for low-income populations. Designing cost-sharing policies involves setting thresholds that balance efficiency gains with equity considerations. For instance, a sliding-scale co-payment based on income can protect poorer patients while still generating modest revenue for the system.

A concept linked to cost-sharing is catastrophic coverage, which provides protection when health expenses exceed a high threshold. Catastrophic coverage may be delivered through supplemental insurance or by capping out-of-pocket payments at a certain percentage of household income. This layer of protection is essential for safeguarding households from poverty-inducing health shocks, but it adds complexity to the financing architecture and requires effective coordination with primary insurance schemes.

The term health benefit package denotes the set of services that a health system promises to finance and deliver to its population. Defining a benefit package involves decisions about which interventions are included, based on criteria such as cost-effectiveness, disease burden, and equity. A well-defined benefit package provides clarity for providers and patients, facilitates budgeting, and supports monitoring of coverage gaps. However, political pressures and stakeholder lobbying can complicate the selection process, potentially leading to inclusion of low-value services.

A related term is essential medicines list (EML). The EML is a curated list of medicines deemed essential for meeting the health needs of a population, selected based on efficacy, safety, and cost-effectiveness. Countries adopt the WHO Model List of Essential Medicines as a foundation for procurement and reimbursement decisions. Implementing an EML can promote rational use of medicines and generate bulk-purchase savings, yet challenges arise in ensuring consistent supply chains and in updating the list to reflect emerging therapeutic options.

The concept of price elasticity of demand for health care is a specific application of elasticity that measures how utilization changes as patient cost-sharing varies. Empirical studies often find that demand for primary-care visits is relatively price-elastic, while demand for specialist services is less so. Understanding these elasticities enables policymakers to anticipate the impact of co-payment reforms on service volumes and to design tiered cost-sharing structures that protect high-need services.

A term that captures the interaction between health and the broader economy is health-related productivity. Health-related productivity reflects the gains in economic output that result from a healthier workforce, such as reduced absenteeism and increased labor participation. Investment in preventive health programs can generate substantial productivity returns, a factor that should be incorporated into cost-benefit analyses. Quantifying productivity gains, however, requires linking health outcomes to labor

market data, which can be methodologically demanding.

The notion of health financing transition describes the shift from external donor funding to domestic financing as a country's income rises. This transition is critical for sustaining health programs that were initially supported by international aid. Successful transition strategies often involve gradual scaling-up of domestic revenue, capacity building for financial management, and alignment of donor and government priorities. Failure to manage the transition can lead to abrupt funding gaps and service disruptions.

A pertinent term is donor financing, which includes grants, loans, and technical assistance provided by external agencies to support health programs. Donor financing can be earmarked for specific diseases, infrastructure projects, or health system strengthening. While donor contributions can catalyze progress, reliance on external funding can create vulnerability if donor priorities shift. Aligning donor financing with national health strategies and ensuring transparent reporting are essential for maximizing impact.

The term public-private partnership (PPP) refers to collaborative arrangements between government and private sector entities to deliver health infrastructure, services, or technology. PPPs may involve construction-and-operation contracts for hospitals, management contracts for service delivery, or joint ventures for health insurance schemes. PPPs can mobilize private capital and expertise, but they also raise concerns about accountability, profit motives, and equitable access. Robust contract design, performance monitoring, and clear risk-sharing provisions are key to successful PPPs.

A concept closely related to PPPs is contracting out, where the government commissions private providers to deliver specific health services, such as laboratory testing or ambulance transport, under a defined contract. Contracting out can improve efficiency and expand coverage, particularly in contexts where public capacity is limited. Nevertheless, oversight mechanisms must be established to ensure that contracted providers meet quality standards and adhere to agreed-upon costs.

The term global budgeting denotes a fixed total amount allocated to a health care institution or system for a defined period, often a fiscal year. Global budgets incentivize providers to manage resources efficiently, as any cost savings can be retained, while overspending may be penalized. This approach is commonly used for hospitals in many European health systems. The challenge lies in setting realistic budget levels that reflect expected demand and inflation, while preserving incentives for quality care.

A related financing method is capitation, where providers receive a predetermined per-patient payment for a defined set of services over a specific period. Capitation shifts financial risk to providers, encouraging them to manage care efficiently and to emphasize preventive services that reduce costly interventions. However, capitation can also induce under-service if providers aim to minimize expenditures. To mitigate this risk, capitation contracts often incorporate quality monitoring and supplemental payments for high-risk patients.

The term diagnosis-related group (DRG) refers to a classification system that groups hospital cases with similar clinical characteristics and resource consumption. Under a DRG payment system, hospitals receive a fixed amount for each case in a given group, regardless of actual costs incurred. DRGs promote cost control by incentivizing hospitals to improve efficiency, but they require accurate coding and robust data systems

to prevent up-coding or case-mix manipulation.

A complementary concept is bundled payment, which provides a single payment for all services related to a specific episode of care, such as a joint replacement surgery. Bundled payments aim to align incentives across multiple providers involved in the care pathway, encouraging coordination and reducing unnecessary services. Implementing bundled payments requires clear definition of the episode, risk adjustment for patient complexity, and mechanisms for sharing savings among participating providers.

The term shared savings describes arrangements where providers and payers agree to split any cost reductions achieved relative to a predetermined benchmark. For example, a hospital network that reduces its average cost per admission by 10 % compared with the benchmark may retain a portion of the savings, with the remainder returned to the payer. Shared savings models can foster innovation and efficiency, yet they rely on transparent cost accounting and robust performance measurement to prevent gaming.

A concept essential for evaluating financing reforms is incremental analysis. Incremental analysis compares the additional costs and benefits of a new policy relative to the status quo, focusing on marginal differences rather than absolute values. This approach helps isolate the impact of a specific intervention, such as the introduction of a new co-payment level, while holding other variables constant. Incremental analysis is particularly useful for budgeting exercises, though it assumes that ceteris paribus conditions hold, which may not always be realistic.

The term cost-utility analysis (CUA) is a variant of cost-effectiveness analysis that uses utility-based outcomes, typically QALYs, to assess value. CUA enables comparison across disparate health interventions by translating health gains into a common utility scale. For instance, a CUA might compare a mental-health counseling program with a surgical procedure by expressing both outcomes in QALYs. The principal challenge in CUA lies in measuring utilities reliably, often requiring population-based preference elicitation methods such as the standard gamble or time trade-off.

A related analytical tool is Monte Carlo simulation, which introduces probabilistic variation into model parameters to assess the robustness of cost-effectiveness results. By repeatedly sampling from probability distributions for costs, effectiveness, and other inputs, analysts generate a range of possible outcomes and estimate the probability that an intervention is cost-effective at a given threshold. Monte Carlo simulation helps address parameter uncertainty, but it demands substantial computational resources and expertise in statistical modeling.

The term discount rate refers to the factor used to convert future costs and benefits into present values, reflecting time preference and opportunity cost of capital. In health economic evaluations, a standard discount rate of 3 % per annum for both costs and health outcomes is often applied, though some guidelines recommend differential rates. Selecting an appropriate discount rate is critical because it can substantially influence the perceived value of interventions with long-term benefits, such as vaccination programs.

A concept linked to discounting is present value, which represents the current worth of a future stream of costs or benefits after applying the discount rate. Present value calculations enable comparison of

interventions with differing time horizons, facilitating prioritization. The challenge lies in choosing a discount rate that reflects societal preferences for present versus future health gains, a decision that may vary across cultures and economic contexts.

The term incremental net benefit (INB) provides an alternative way to express cost-effectiveness results. INB is calculated by multiplying the willingness-to-pay threshold by the incremental health gain and then subtracting the incremental cost. A positive INB indicates that the intervention is cost-effective at the specified threshold. INB simplifies statistical testing of cost-effectiveness, especially when using probabilistic sensitivity analysis, but it still depends on the choice of an appropriate willingness-to-pay value.

A crucial term for health financing assessments is affordability analysis. Affordability analysis examines whether a health system can sustain the financial outlays required for a program without compromising other priorities. This may involve comparing the program's cost to total health expenditure, assessing fiscal space, or evaluating the impact on debt ratios. For example, introducing a new high-cost oncology drug may be deemed cost-effective but unaffordable if it would require reallocating funds from primary care. Affordability analysis therefore complements cost-effectiveness evaluation by adding a pragmatic fiscal dimension.

The term value of statistical life (VSL) is used in cost-benefit analyses to assign a monetary value to reductions in mortality risk. VSL is derived from observed willingness to pay for small reductions in mortality risk, often using labor market data on wage premiums for risky jobs. Applying VSL enables analysts to translate lives saved into monetary benefits, facilitating comparison with program costs.