

Reimbursement for critical care services in India

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Abstract

There are significant variations in critical care practices, costs, and reimbursements in various countries. Of note, there is a paucity of reliable information on remuneration and reimbursement models for intensivists in India. This review article aims to analyze the existing reimbursement models in United States and United Kingdom and propose a frame-work model that may be applicable in India.

Keywords: Compensation, critical care, fee-for-service, health-care resource groups, intensive-care unit, intensivists, payment-by-results, pay for performance, pay-for-volume, reimbursement, third party administrators

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Introduction

“Money can’t buy me love” is a famous song by The Beatles.^[1] However, it could possibly buy everything else. Indeed evidence from human brain imaging implies that affect evoked by the anticipation of gain and loss may carry distinct neural signatures. Specifically, the nucleus accumbens of the ventral striatum shows proportional activation during anticipation of monetary rewards and this activation correlates with positive aroused affect.^[2,3] In fact in the general prologue of the Canterbury Tales, Geoffrey Chaucer describes physicians as having a “special love for gold.”^[4] Dating back further to ancient times “The code of Hammurabi” written circa 2000 B.C, contains several references to physicians including how they should be paid for their services.^[5]

Every profession should strive to balance this inherent human neural drive and commercialization that may ensue with ideal objectives such as altruism, service, professionalism, honesty, ethics, and integrity.

Medical profession and in this context intensive-care, intensivists are no exception to this. There is paucity of reliable information on remuneration of intensivists in India. This is not surprising as critical care is relatively a new field though it has evolved significantly over the past decade with professional leadership, position statements, and guidelines from Indian Society of Critical Care Medicine (ISCCM).^[6] In this review, we analyze some of the jargons used in critical care finance and reimbursement models prevailing in two health-care systems with striking contrasts (United States (US) of America and United Kingdom (UK)). Finally, we propose a frame-work by which intensivists working in various intensive care units (ICUs) in India can design and negotiate reimbursement of services while safeguarding professionalism, ethics, and most importantly ensuring delivery of high-quality affordable care to our patients.

Critical Care Services Reimbursement: North-American Perspective

In contrast to the practice at various time points in European history where the law restricted doctors’ ability to bill for their services, the legal barriers to commercializing medicine did not take root in the Americas. Rather, US law has always treated provision of medical services in the same way as it treats other sales and trade practices. However, unlike other consumer driven industries where the linear relationship between quality, performance, and productivity

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translated in to high standards, competitiveness and ultimately consumer satisfaction, health-care industry faced numerous problems with this approach and failed to achieve its objectives. Indeed every other issue of front-line medical journals such as New England journal of medicine features articles focusing on various issues plaguing current US healthcare system and possible solutions.^[7] In a comparison of health-care delivery in 191 countries, US ranked 37th in performance while spending the highest portion of gross domestic product (GDP) on health-care.^[8] In the report 'Crossing the Quality Chasm,' the Institute of Medicine (IOM) identified numerous factors contributing to this including, the structure of the present health-care payment system.^[9] The IOM found that, for certain clinical situations, health-care payment arrangements may actually produce disincentives for provision of good quality services. A "pay-for-performance" (P4P) approach was put forward as a method to align incentives so that hospitals and providers are encouraged to deliver high-quality care in a more cost-effective and efficient manner.^[10]

P4P: A Bridge Too Far?

Historically physician remuneration in North American health-care system has been based on a fee-for-service or pay-for-volume model that reimburses physicians according to the nature, number and intensity of services delivered. In other words, physicians receive the same compensation regardless of the quality of care provided. In contrast, a P4P model offering tangible incentives to achieve quality benchmarks defined upfront is an attractive strategy to influence physician behavior towards achieving better clinical outcomes, performance statistics, and standards. In the context of intensive-care, where the services constitute a large proportion of hospital budget and costs, any strategy that leads to cost containment while preserving high-quality of the service is theoretically appealing.

In general, P4P schemes can be reward- based providing extra compensation for achieving desired targets^[11] or penalty-based withholding compensation for failing to meet benchmarks such as hospital-acquired conditions (Catheter -related blood stream infections, surgical site infections etc.,) and never events (air embolism, pressure ulcers, incompatible blood transfusion etc.,)^[12] though, the latter model is highly controversial and has met with considerable resistance at implementation level. P4P can be targeted to individual physicians, physician groups or hospitals referred to as provider -based P4P or hospital based -P4P. The proposed incentives need not be fiscal all the time and

may include, public reporting of good performance, referral of new patients to high performers etc., Indeed multiple P4P programs are underway often with significant legislative reforms.^[13,14] In 2007, the Centers for Medicare and Medicaid Services launched the Physician Quality Reporting Initiative (PQRI), which introduced P4P in to the ICU subsequently.^[15] Some of the PQRI goals include, screening for depression, beta blocker therapy for patients with prior myocardial infarction, a central venous catheter insertion protocol and a directive for head of bed elevation to prevent ventilator associated pneumonia.

In this context, Khanduja *et al.* meticulously reviewed implementation of P4P in the ICU.^[16] It was clearly shown that P4P is being introduced in the absence of clear supporting evidence regarding methodology, efficacy, and outcome in the intensive-care setting. Clearly, the published literature in this context didn't include, hospital in-patients, incentives targeting intensivists or ICU-related quality indicators. Most were of the opinion that there is no gold standard or even one preferred method. Over and above analyzing potential issues in applying P4P to ICU context, they also expressed concerns for potential misuse of P4P (both intended and unintended) such as gaming the system, targeting patient population with less disease burden, rationing bias, etc.

Hence, it wasn't surprising that with the sweeping health-care reforms and P4P inroads in ICU -related issues as above, the key stakeholders in the field of critical care medicine in Unites states constituted task forces and brought out summary reports and key recommendations in this context.

P4P in Critical Care: Position Statements by the Society of Critical Care Medicine and American Thoracic Society

The SCCM constituted a "P4P in critical care task force" followed by publication of an executive summary and practice guidelines.^[17] The report starts with a review of history of pay for performance programs, development of quality measures, and implementation of the measures by quality improvement organizations and early adoption of health information technology to facilitate the process. The report moves on with key points of a good P4P program underscoring the need for an effective incentive strategy to obtain desired results, periodic evaluation followed by adjustments as required and establishing collaborative relationships based on shared goals. Other important aspects in a P4P program include, the measures rewarded, timing of incentive distribution, funding source of incentive, the type, structure, and

size of the reward. Having defined the process of implementing a good P4P program, the next objective of the committee was to arrive at quality measures in this context. The subcommittee identified and developed five quality measures: Deep venous thrombosis prophylaxis; low tidal volume in acute respiratory distress syndrome; maximal barrier precautions for central venous catheter insertion in pediatric patients; prevention of catheter-related infection with preferential use of subclavian vein and stress ulcer prophylaxis. They further added that as future P4P programs and quality measures develop, the number of measures applicable to critical care providers will need to increase and called for active involvement of SCCM in this process. The report noted the tremendous growth in the number of P4P programs since inception while stressing upon the unanswered questions, that included the impact of these programs on the provider's income, the funding source(s) for the programs, effects on quality of care, clinical outcomes, and how providers will align incentives from value-based purchasing programs. They concluded on an optimistic note that as quality measures mature and the information systems required for implementation proliferate, some of these questions will be answered and reiterated SCCM's intent to remain active in the evolution of ICU specific P4P programs in USA.

On a related note, American thoracic society also published a position statement supporting introduction of P4P in pulmonary, sleep and critical care medicine with the primary goals of improvement in health outcomes, reduction in health-care disparities, and expanding access to high-quality care.^[18] It calls for active participation of clinicians and other members of the multi-disciplinary teams in designing and implementing P4P programs. It underscored the need for research into organizational, structural and cultural factors that may influence success and effectiveness of individual programs and encourages funding organizations to consider including P4P programs in their comparative effective research agenda. The report appears to be particularly sensitive towards potential pitfalls of a penalty-based P4P and the fact that health-care complications may not be entirely preventable. Restricting reimbursements following such "never events" can be deemed controversial and therefore, the report recommends introduction of rational thresholds and evidence based exceptions to quality measures. It also highlights the unintended consequences of P4P such as adverse impact on vulnerable patient population, penalties for providers caring for high-risk patients, increasing complexity and burden of clinical documentation, use of unnecessary investigations and treatments etc., and proposes solutions for minimizing the same.

Reimbursement of Critical Care Services: UK Perspective

The health-care in the UK is delivered via National health service (NHS), which is a public service supported by general taxation providing free health-care at the point of delivery for anyone who is resident in the country (Current estimate around 60 million people).^[19] Coming directly from this taxation pool, NHS received roughly ≤ 100 Billion for the financial year 2008-09 and 60% of this budget is used for paying its staff. The department of health controls NHS and its head reports directly to the prime minister of UK.^[20] Hence political, economic fluxes of the times exert considerable influence on funding streams and priorities which in turn impacts the process and mechanism of reimbursement of services provided by NHS hospitals (Trusts). The white paper "Equity and excellence: Liberating the NHS," which is proposed to introduce radical reforms in the way NHS functions including its finance since its inception in 1948, mandates national currencies for Adult and neonatal critical care.^[21] This, in other words is the introduction of payment by results (PbR) into critical care in UK in the near future the principles of which are designed to promote and incentivize high-quality clinical care and effective utilization of NHS resources akin to P4P programs detailed earlier in the American context.

Current Practice in UK

To provide critical care services, hospitals in UK currently negotiate and enter in to a contract with primary care trusts (PCTs),^[22] the local organizations, which control 80% of the NHS budget and are responsible for providing services such as hospitals, dentists, and opticians. The nature of the agreement falls broadly in to either a block contract or an activity-based contract. Either way, there has to be an agreement arrived upfront on the currency, which in this context is a clinically meaningful grouping whose resource utilization is likely to be predictable, and its value. In a block contract, the hospital is paid an annual fee by PCT and the type of currency is an occupied bed day. Next step is working out total cost over a time period by adding a series of reference costs (labeled cost buckets), which contributes to the cost of care obtained from a published reference manual. This is divided by the number of occupied bed days for that time period in turn providing the price of a single day irrespective of complexity of case mix/individual treatment needs. To negotiate the contract, the hospital has to work out how many occupied days they expect to have in a year, which will be a guesstimate, based on historical information. As critical care services are high-cost/low-volume services, the problem with such contracts is that the hospital

has funding only for projected service and related infrastructure, manpower without additional margins for contingencies and from a financier's perspective, they may find themselves reimbursing services regardless of actual activity. In case of under-activity, hospital makes a profit upsetting the commissioner and in case of unexpected over-activity such as H1N1 (swine flu) outbreak, PCT will be happy to receive the service for no additional cost, which turns over the risk and financial pressure to the hospital. This inflexibility and related financial risk is the biggest drawback of this contract.

To circumvent these problems, an alternative would be a cost- and- volume contract, which is based on actual activity, linked to its cost coupled with a variable cost per case adjusted between a threshold and a ceiling so that both the hospital as well as PCT shares the risk. This contract can be signed in such a way that a certain amount of anticipated expenditure can be agreed upfront with remaining percentage linked to over activity reimbursement of which can be in many ways depending on size of unit, occupancy, nature of services provided. Despite the inherent advantages of this contract, currently only a minority of hospitals is reimbursed in this fashion with the majority stuck to block contracts with no incentives for over performance. Hence, introduction of PbR is happening at a crucial juncture in the history of intensive care finance in UK.

PbR

As a general rule, PbR uses health-care resource groups (HRGs) as the currency, which is a cluster of patients with similar diagnosis, treatment pattern, care pathway, intervention etc., and hence in principle carry similar costs. This is multiplied by a national tariff price adjusted for unavoidable local cost pressures known as market forces factor. HRGs for critical care unlike a day surgery care pathway for laparoscopic cholecystectomy or knee arthroscopy is complicated by the inherent heterogeneity of patients and services provided. Based on the research conducted by a group from University of Sheffield School of health, it was concluded that it is the number of organs rather than the type that will best describes critical care HRGs.^[23] To aid, this task a critical care minimum data set (CCMDS) was developed with 34 fields of which 14 are mandatory such as admission/discharge times, where the patient came from, type of critical care facility, location after discharge, nature/number of organs supported etc.^[24] Final figure is arrived by entering the data in to software called grouper logic, which looks at number of organs supported per day, and then counts total number of organs supported during the critical care admission/care period. Calculated in

this fashion, critical care has 7 hGs related to number of organs supported (0-6 excluding Gastro intestinal support). Final figure is arrived by multiplying HRG price with the number of bed occupancy days.

As can be seen, introduction of PbR is a significant drift from traditional methods of financing critical care in UK introducing additional challenges and complexities for staff that are well-versed with conventional methodologies. A major difference in comparison to the P4P programs discussed earlier is the absence of measurable quality metrics with PbR though the quality agenda is top on the list in the proposed health-care reforms and related white paper. As critical care services in UK are organized via regional networks catering to the population in that geographical region,^[25] many unanswered questions remain at this stage such as whether to negotiate a local network tariff or adhere to a national tariff as in other clinical services, how to incentivize units, that may be resource-limited and hence, unable to support more organ numbers which in turn deprives them of further funding raising questions on their longterm viability. This in a way undermines the very essence of PbR. Nevertheless, PbR is here and will hopefully bridge the funding inequalities observed with earlier models in UK.

Reimbursement of Critical Care Services: Indian Perspective

Indian health-care like the country itself is very diverse and multi-layered with wide disparity in distribution of health-care services. Not surprisingly, Intensive-care units also exhibit this inherent heterogeneity.^[26] Marked contrast exists between ICUs in state run hospitals offering near- free services with limited infrastructure and resources and the private sector offering state-of-the-art care to the patient segment with purchasing capacity. With additional variables like structure of ICUs (Medical, surgical, cardiac, mixed etc.) ICU staffing/and organizational models (open, transitional or closed) it can be concluded that there is no "one size fits all" formula addressing the reimbursement for intensivists in India, which balances the aforementioned issues while preserving ethics and professional standards. Hence, instead of trying to propose a nationwide model as in the USA or UK, we will attempt to delineate the prevailing health-care delivery platforms and try to integrate the reimbursement model with its unique constraints.

Government Hospitals

With the community hospitals and large medical

college teaching hospitals providing free health-care with staff on a monthly payroll in nationally or regionally agreed pay scales, attempts to introduce reforms at a specialty-specific level will be an uphill task. Nevertheless, measures aimed to enhance the profile of critical care in this setting with appropriate financial remuneration, which is imperative for the development of service, and retention of ICU staff, in turn will translate into overcoming the significant limitations faced by care providers. In this regard, a position statement by relevant professional organizations will be a positive step and the broad areas of focus could be:

- Formalizing professional certification in critical care. The recent approval of Critical Care Medicine as a subspecialty by Medical Council of India is a positive step in this direction
- A step up in the salary for personnel successfully completing the certification and undertaking dedicated time in ICUs
- Developing quality indicators appropriate in this setting and matching rewards for achieving same.
- Rewards for clinicians taking the initiative for better participation of local community in development of new clinical services and improvement of infrastructure
- Incentives for clinicians, for training nurses and allied staff for enhanced roles within the ICU and also the development of follow-up services to avoid readmissions.

The list is not exhaustive and we fully appreciate the fact that there is a clear need to be innovative, adaptive and sensitive to the various professional and political issues while maintaining the perseverance and resilience to effect these changes. The inherent bureaucratic process governing the health-care services, limited funding streams, competing interest from other specialties, health priorities of the government can impact the process. Nevertheless, if a beginning is made, it will lead hopefully, to improvement of critical care services and patient outcomes.

Private Hospitals

Broadly speaking, the private health-care in India includes tertiary corporate hospitals managed by companies, trusts or societies, a range of medium to small sized nursing homes and hospitals mostly run by individuals or group of medical professionals. It usually operates on a fee for service model with up to 85% patients paying out of pocket and the remaining covered by health insurance. ICU services in corporate tertiary

sectors are well-equipped with matching staff resources and offer quality of care at par with the prevailing standards in the western world. In the smaller facilities, hospital management is increasingly acknowledging the need for appropriate infrastructure, resources and personnel to deliver quality care to critically ill patients. ISCCM has developed guidelines to identify levels of ICU care and also to define the best practices that are being adopted widely.^[27] With this positive background, we propose the following models in the two common scenarios, in the one the patient paying out of pocket and in the other receiving third party reimbursement.

Fee for service

A fee-for-service model accounts for 82% of overall health-care expenditure equating to 4.2% of GDP.^[28] ISCCM position statement in this regard mentions that the consultant intensivist may receive a fixed salary, or a fee for service. If fee is for service, the fees include consultation charges, which may be more than once in a day and procedure charges in line with hospital policy and at par with similar services provided by other specialty consultants, or departments.^[29] However, the sad reality is that in the absence of comprehensive insurance cover, more than 80% patients have to pay out of their pocket for health care services. Despite growth in economy and development of a middle class population with purchasing power, it is well-accepted that one episode of hospitalization is enough to account for 58% of per capita expenditure pushing 2.2% below the poverty line. Even more disconcerting is the fact that more than 40% of those admitted to an ICU had to borrow money or sell assets.^[30] Hence, it is imperative that any proposed model carefully balances these issues with that of intended professional reimbursement. An idealist viewpoint based on professional ethics and compassion may dictate health-care providers to discount fees for patients in difficult circumstances. This is further amplified in the context of intensive-care, as most ICU admissions are unanticipated and pushes the family members into a whirlpool of mental agony. If they were to battle additional unprecedented financial difficulties, it is even harder.

In an earlier article, we had detailed various cost-blocks contributing to the cost of intensive-care in India.^[31] Analyzed along those lines, a typical ICU charge sheet can be designed factoring some of the blocks including intensivists' remuneration [Table 1 outlines a sample which is by no means all-inclusive]. Each service and consumable can be coded along with the corresponding cost factor decided upfront, which will be the maximum for that financial year with profit margin built in to it. Multiplying this by number of days in ICU will furnish total cost per block. Final charge sheet

Table I: ICU Charge Sheet

Category	Code	Unit Charge	Qty	Total	Discount	Final
Intensivists' consultation						
Critical Care Level 3						
Critical Care Level 2						
Critical Care Level 1						
Medical Emergency Team service						
ICU followup/Outreach service						
Intensivists' Procedures						
Endotracheal intubation						
Central Line						
Dialysis line						
Arterial Line						
Intercostal (Chest) Drain						
Thoracentesis						
Diagnostic Bronchoscopy						
Therapeutic Bronchoscopy						
Critical Care Ultrasound/Echo						
Insertion of Intra Aortic Balloon pump						
Pericardiocentesis						
Tracheostomy						
Abdominal Paracentesis						
Anaesthesia for bedside procedures						
Daily consumables						
Electrodes						
Syringes						
Cotton Wool						
Urometer						
Standard IV set						
Oral Hygiene Pack						
Gloves						
Blood tranfusion set						
Dressings and sutures						
Dressing Pack						
Creep Bandage						
Suture material						
Suture Removal Pack						
Sterile Gloves						
Hemodynamic monitoring						
Blood Warming System						
Transducer						
Arterial catheter						
Central venous catheter						
Point of care tests						
Arterial Blood gas analysis						
Glucose sticks						
Urine dipstick						
IV fluids						
Dextrose						
Mannitol						
Normal Saline						
Colloid						
Blood and blood products						
Packed RBCs						
Fresh Frozen Plasma						
Platelets						
Cryoprecipitate						

Table I Continue.....

based on current best evidence for managing critical illness is a significant drift from traditional health insurance packages that exclude preexisting illnesses

- Actuary input to work out financial aspects of the risk and uncertainty of critical illness
- Develop strategies for consistent pricing and tariff schemes using the template discussed earlier and define intensivists' remuneration in terms of percentage of sum total adjusted for the level of critical care service provided.

Once a frame-work is designed in this context and policies developed, TPAs can market the products and accredit ICUs across the country to provide cashless service for their customer base. Even then, it is conceivable that some degree of co-payment will be required from patients and it is also likely that established corporate players may refuse to be a part of preferred provider network. Hence pending radical reforms, this category will remain a problem area both for the intensivists as well as our patients in the foreseeable future.

Conclusions

From the code of Hammurabi to contemporary literature both medical as well as general fiction such as Aristophanes' and Sophocles' plays, Moliere's "Le Malade imaginaire" and George Bernard Shaw's "The Doctor's Dilemma," we can find references of physician remuneration. Hence it must have been as important as it is today with evolving models and method of reimbursements and related ethical and social issues depending on various time periods. In this review, we analyzed some of the prevailing models in reimbursement of critical care services in the western world and the underlying issues in this context in India with possible solutions. No system will ever be perfect with a good balance of quality of care and patient affordability while ensuring adequate professional remuneration of intensivists along with profitability and viability of health-care providers. An advice given by an influential physician at the turn of the century becomes relevant in this context. "When you are in doubt what to charge, look around you (to what other doctors charge), then upwards (toward God), then make out your bill at such figures as will show clean hands and a clear conscience."^[33]

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