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COST-EFFECTIVE PRACTICE OF NEUROLOGY: AN IDEA WHOSE TIME HAS COME

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Pakistanis spent $ 7.2 billion on healthcare in 2013 (3.1% of our Gross Domestic Product), representing a per capita expenditure of $ 39.4. The government contribution to this was no more than 31.4% ($ 12.4 per capita). The public allocations to health thus represent a paltry 4.7% of total government expenditure and are just shy of 1% of our GDP. This pushes private expenditure on health up to 68.6% of total health expenditure and of this, direct out-of-pocket expenditure is an alarming 90.2% [1]. Health insurance is in its infancy in the country and private prepaid plans represent no more than 0.3% of private expenditure on health. With this virtual absence of health financing coverage in Pakistan, those afflicted by neurological disease and requiring the attendant costly investigations and therapies, are particularly vulnerable to financial catastrophe. In this scenario, the economic burden may discourage the neurology patients from seeking health services and if they do, may result in severe financial hardship with sale of assets and reduction of expenditure on food and children's education. Even though physicians are the major drivers of healthcare costs, their educational curricula remain largely silent on the role of cost in the planning of diagnostic strategies [2]. Indeed, surveys of medicine residents and faculty have disclosed very poor knowledge of the charges of the tests and treatments they order [3]. Encouraged by success of the initiatives to enhance patient safety, policy makers and professional leaders have in the recent past turned their attention to "cost effective medicine" and the opinion leaders are espousing the view that physicians should be taught to consider the cost of their practice [4]. The Accreditation Council for Graduate Medical Education has proposed that cost-consciousness should be introduced as the 7th core competency of residents in their programs [5]. The American College of Physicians, aiming at fostering "high-value, cost-conscious care", has published a consensus report detailing 37 commonly misused screenings and tests [6]. The imperatives of cost efficiency in clinical practice are particularly germane to neurology and neurosurgery where investigations and treatments offered are expensive and not always efficient. We will readily order an MRI in a patient with a stroke confirmed on a CT scan even though the MRI scan is unlikely the alter the patient's care [7]. The cerebrovaculature in stroke is also well delineated by CT angiography without recourse to MRI and duplicative choices in neuroimaging drives up the cost of care without improving the outcome [8].To address the issue of waste and inefficiency in the clinical arena, The American Board of Internal Medicine (ABIM) has promoted a project called "Choosing Wisely", which asked specialty groups to each compile a list of 5 tests and treatments/procedures in their clinical areas which are overused despite being of low value. In response, the organizations representing neurology and neurosurgery have highlighted how we order costly investigations which do not further clinical care. The recommendation of an EEG in the diagnostic evaluation of headache is a good example: it does not anywhere approach the sensitivity of neuroimaging and nor does it assist in teasing out the varieties of headaches. And it is not inexpensive. Similarly, ABIM points out in their report that obtaining MRI scans of the spine in patients with non-specific acute low back pain and without any red flags on clinical assessment is bereft of evidence [9]. Also questionable are some expensive treatments for which the evidence is poor and which do not positively impact outcomes such as prescription of interferon-β to patients with disability from progressive, non-relapsing forms of multiple sclerosis, the administration of anticonvulsants routinely after stroke and performance of lumbar fusion surgery for back pain without clear-cut indications. MRI scanning has undoubtedly been a major catalyst for quality in treatment of brain and spine diseases but is a significant contributor to costs of practice of neurology/neurosurgery. A study from a university department in Finland recently found that a small but significant fraction of MRI requests were inappropriate and such observations have been documented from many other countries.[10] "Not wanting to miss something" is the hallmark of practice of defensive medicine but most of those trained in the clinical neurosciences should have the fund of knowledge and analytical skill to practice the kind of evidence-based, high-value care that is the best defense against diagnostic misadventure and medical liability [11]. The neurologist's response to the patient with uncomplicated headache or acute low back pain without red flags should be thoughtful analysis rather than a reflexive MRI requisition. The patient's financial interest must be placed at par with the value accorded to clinical safety.However, where healthcare providers are paid fee-for-service, there is a tendency to over-service and the medicine practiced in the private setting is more cost-intensive than that where resources are limited [12]. More pernicious is where costs of private medicine are driven by provider's financial interest in the services utilized [13].Making an investment in

MRI equipment changes patterns of referral for imaging and is again documented in a recent study from Stanford which tracked the ordering of MRI of lumbar spine and subsequent low back surgery amongst a group of primary care physicians and spinal surgeons before and after their practices acquired MRI scanners [14]. For both groups it was seen that frequency of ordering MRI scans in patients with back pain increased after installation of their own MRI scanners. Consequent surgery on the lumbar spine was more frequent in the patients of the spinal surgeons compared to the period prior to in-office scanning.Conflict of interest issues have been addressed by the World Medical Association [15] and many national professional bodies and they have made clear their abhorrence of self-referral, fee-splitting and other unethical but lucrative practices that are rampant in countries with the toxic combination of high out-of-pocket payments and ineffective regulation of medical practice. Neurological practice offers many temptations for unfair financial aggrandizement at the expense of the patient. Unnecessary EEGs, EMG/NCV studies are well known examples but particularly so are where neuro-imaging is ordered by the neurologist with a financial interest in the imaging center. Some enterprising but amoral practitioners prescribe and themselves dispense expensive placebos all to the significant cost-detriment to the patient but without any clinical benefit.Neurologists must be critical in the choice of clinical pathways they follow as guardians of their patient's larger interest and be role models for their residents. While recognizing that biomedical innovations have been the key factor in the improved patient outcomes seen in our age, these diagnostic and therapeutic technologies must be used judiciously and assessed through the lens of monetary value [16, 17]. It is not enough to limit ones responsibility to the individual patient's clinical problem but rather it is a moral obligation to expand ones vision to his personal milieu and the financial burden imposed by costs of accessing health services.The challenge is to practice high quality medicine that is ethical, beneficial and cost-effective. We need to be sensitive to the cost-implication of each clinical decision and foster such a culture by appropriate guidance to our trainees in utilization of healthcare resources. Introduction of "Cost Rounds" with presentations of cases from a cost perspective [18] and case-based "Cost Conferences" with participation of colleagues from radiology, pharmacy, nursing and the billing department [19] can be a start. In addition, we must harness the powers of our institutional information systems to remind us of the cost implications of care at the time that we are placing our orders and requisitions [20]. We must be ever-vigilant in our responsibility to curtail healthcare expenditure rather than adding, blindly or willfully, to the burdens imposed on our patients by the care we offer.

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Dr. Rashid Jooma: Study concept and design, protocol writing, data collection, data analysis, manuscript writing, manuscript review