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Discussion Kernel

Quality of Ayurvedic health care delivery in provinces of India: Lessons from essential drugs availability at State run Ayurveda dispensaries



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ABSTRACT

Quality of health care delivery primarily depends upon the availability of resources in terms of manpower, infrastructure and material. Ayurveda has beautifully embodied this concern as *chikitsa chatuspad* (four essentials of health care delivery). In the absence of any one of these, the quality of health care is bound to be jeopardized. The concept of essentials in health care is commonly utilized to analyze the level of quality of service offered at a health care unit. Ayurveda, despite being the pioneer in terms of setting standards of health care delivery in its own time, remained away from such checks in contemporary practices. We have considered here the availability of drugs from Essential Drug List (EDL) of Ayurveda as one of the most basic requirement to assure a quality based health care. The same therefore could have been considered as a parameter of quality check. We have critically analyzed the availability of EDL drugs at State run Ayurveda dispensaries in Uttar Pradesh and found soaring gaps between the recommendations and the actual availability. The study reveals that a large scale ground work is required primarily to identify the drug needs and subsequently to evolve a mechanism ensuring an uninterrupted supply of drugs at primary and secondary care settings in Ayurveda.

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1. Introduction

Health care delivery depends upon three closely interrelated factors- infrastructure, clinician and patient. Quality of health care delivery therefore can be viewed from the perspectives of services, outcomes and resource stewardship [1].

In a competitive environment, the quality of the delivered health care services with a focus upon ultimate outcome within a cost contained frame, is what all health organizations are envisaging for. Measuring quality of services delivered therefore, is a priority to those who wish to become leaders in their segments. In government sector, measuring the quality of the services delivered gives a direct feedback to know if the policies are being implemented in their right perspectives and if they are able to deliver what they intend to.

India, by virtue of its pluralistic health care model, has diverse health care facilities belonging to multiple systems, and operational categories. Besides the organized health care sector, a substantial amount of this care also comes under the unorganized sector. Besides conventional care, Indian pluralistic model allows many alternative

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health care systems to play their respective roles in the net health care. Indian health care seekers utilize their own logic in choosing a health care system or a service provider suiting to their own set of problems [2]. Out of these logics, one strong logic observed ubiquitously is the availability of drugs in the health care facility to be dispensed to end users either for free or at a subsidized cost. Cost of the medicine happened to be one major component of net health care cost in India. Health care therefore is largely considered as a draining affair for common Indian middle and lower middle class folks particular to rural area [3]. Taking a major step in this direction, Indian National Health Policy 2017 prioritizes to provide universal access to free drugs, diagnostics and other essential components of health care in India [4].

2. Essential drug listing: importance in health care monitoring

Essential drugs (ED) are the drugs which are *prima facie* important for offering care to common health problems particular to a population in a specific geographical area [5]. ED can be common for a large population on the basis of the shared health issues or can be specific to the localized health needs limited to a particular area. Such essential drugs by and large cater to the needs







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related to the prominent disease burdens. On the basis of their importance, such drugs are carefully screened, identified, listed (known as Essential Drug List or EDL) and monitored for their cost, efficacy and safety to ensure maximum benefits to the subjected population. The idea of ED therefore is to provide optimal care in most conditions pertinent to a geographical location in a quality bound, accessible and affordable manner.

Based upon the ED listings, a crosscheck of prescriptions generated in the hospitals is usually done to monitor the prescription adherence to EDL. Availability of ED in a health care facility assures the provision of optimal, affordable and accessible health care to its dependent population in terms of drugs. It is for this reason, such availability is considered a critically important parameter to measure the quality of total health care delivered at a facility [6]. This is also considered an important point in determining drug use indicators identified by WHO [7].

Seeing the conceptual importance of essential drugs, WHO initially launched its Essential Medicines List (EML) in 1977 and is consistently improving it through the process of discussions among the stakeholders. The EML is being updated every two years since its launch in 1977. The currently available 20th WHO EML and the 6th WHO Essential Medicines List for Children (EMLc) are updated in March 2017 [8]. Much research has been done globally in conformance of using the essential drugs in prescribing as a parameter to identify the level of care offered at a given health care facility.

2.1. Essential Drug Listing in India: Steps taken in AYUSH

Working on similar lines, in India, National List of Essential Medicines (NLEM) was prepared firstly in 1996 by Central Drug Standard Control Organization (CDSCO). The list was subsequently revised in 2003, 2011 and 2015 respectively [9]. Exercise to identify essential drugs in Ayurveda in India took place soon after the same exercise was carried out for modern medicine. First EDL of Ayurveda, Siddha and Unani (EDL-ASU) was published by Department of AYUSH, Govt. of India in year 2000. This was subsequently revised in 2013 and the same is being currently used [10].

2nd version of the EDL-ASU was partially improved over the previous one in containing 277 drugs divided in 21 categories. Reviews of EDL-ASU 2013 have pointed out certain areas of concerns like – absence of therapeutic area based categorization; missing of many common formulations from the list, absence of an alphabetical index of all the medicines, syntax, formatting and spelling errors. These concerns have partially diluted the usefulness of the EDL-ASU 2013 as a reference document [5]. The biggest limitation in EDL-ASU however, was found to be the absence of drug categorization into core and complimentary drugs as it is done in WHO EML. By understanding the core and complimentary medicines or the essential drugs as a whole, it is largely agreed that these medicines are required to remain essentially available in a hospital to assure optimal care.

3. Availability of essential drugs at State run Ayurveda dispensaries: the cause of concern

Despite a clear understanding about the need of drugs from EDL in a health care unit, it is hardly seen in practice in AYUSH. A pertinent example to this may be seen at most State run Ayurveda dispensaries and teaching hospitals in India finding them being devoid of many ED needed to deliver the effective care to their patients. As a result, the patients, who initially arrive at Ayurveda dispensaries in hope of better care, not otherwise available at conventional health care centers, return home in dismay with broken hope and reduced belief in system due to non-availability of drugs at the health care facility.

3.1. Availability of Ayurveda essential drugs at State run dispensaries in Uttar Pradesh

Uttar Pradesh has 2105 Ayurvedic dispensaries/hospitals in the form of 4 bed, 15 bed and 25 bed dispensaries in addition to hospitals associated with teaching institutions [11]. State run Ayurveda dispensaries in Uttar Pradesh face two pertinent problems. The first of them is the unavailability of most of the medicines which are needed to be prescribed by a physician (and dispensed at the dispensary) in a particular disease condition. The other is the poor quality of medicine dispensed. It is not uncommon to see the dispensing of spoiled, expired, inadequate, inappropriate and impure medications to the patients in a State run Ayurvedic dispensary having a possibility of leading to potentially undesired effects or adversities [12]. Availability of drugs in State run Ayurveda dispensaries is severely scarce here. Ayurvedic medicines supplied to State run dispensaries in Uttar Pradesh are manufactured at State Ayurveda pharmacies. A sanctioned list of 50 Ayurvedic drugs (10 for emergency conditions and 40 for general conditions) are found approved to be manufactured at this pharmacy (Table 1). This list of possible essential medicines of Ayurveda in UP was prepared in 1999 and is in use for about two decades without being revised. This list, when compared with the current EDL-ASU listing of the drugs, revealed a gross difference between the two. Only 13.71% (38 in number) of the drugs from EDL-ASU were able to find a place in State EDLA (Table 2). Out of 21 categories of medicines recommended in EDL-ASU, 7 categories of drugs comprising of 46 drugs were altogether missing in the State EDLA. These missing categories were subsequently identified as arka; avaleha, paka or khanda; ghrita; varti, anjana and netra bindu; satva; mandur and; lauha. Highest similarities among EDL-ASU and State EDLA were found in categories like bhasma (50%), parpati

Avurvedic	drugs	listed	under	FDI A	Httar	Pradesh
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Drugs listed for emergency conditions	Abhraka bhasma; Vanga bhasma; Karpur bati; Prabhakar bati; Karpurasava; Ahiphenasava; Shirah shuladi hara lepa; Mukta pishti; Yogendra rasa; Siddha maker dhwaja
Drugs listed for ordinary conditions	Sudarshan churna; Nimbadi churna; Haritaki churna; Amalki churna; Pippali churna; Bilvaadi churna; Baal chaturbhadra churna; Pushyanug churna; Arjun twak churna; Som churna; Chitrakaadi bati; Sanjeevani bati; Malaria sanhar bati; Yogaraja guggulu; Rajah pravartini bati; Arogya vardhini; Chandra prabha vati; Godanti bhasma; Mandur bhasma; Shankha bhasma; Tribhuvan kirti rasa; Kaphaketu rasa; Ashoka rishta; Arjuna rishta; Kutaja rishta; Panchaguna tail; Raasnadi kwath; Pathyadi kwath; Phala trikadi kwath; Jatamamsyadi kwath; Yavakshar; Shweta parpati; Shu. Swarna gairik; Shu. Gandhaka; Shu. Kupila; Shu. Tankana; Shu. Nrusara; Shu. Sphatika; Taalisaadi churna; Dashamula kwath

(50%), kupi pakva rasayana (50%), Lavan and kshara (28%), polyherbal churna (27%) and single herb churna (28%).

Shortage of medicines in Ayurveda dispensaries across various states, acts as a major limitation in optimal delivery of Ayurveda health care. Taking this into account, the Ministry of AYUSH, Govt. of India, through National AYUSH Mission (NAM) has decided to provide Avurvedic medicines to all State run Avurveda dispensaries throughout the country for the purpose of their free dispensing in order to improve the quality of the services delivered at these dispensaries [13]. The worth of these medicines to be supplied by the Center was to be determined on the basis of facts likepopulation catered by the particular dispensary and the actual demand of the drugs. Although NAM was flagged off in 2014, this scheme of drug supply to Ayurveda dispensaries in Uttar Pradesh began only in late 2016. A total of 68 Ayurvedic drugs from the EDL-ASU have been supplied so far comprising about 24.54% of the total listing at EDL-ASU. In addition to the drugs supplied by the Center (among which many were also enlisted in state EDLA and hence manufactured locally), 18 more drugs were found to be a part of state EDLA, and hence, were supposed to be available for dispensing though not supplied under NAM. In this way, at any point of time an Ayurvedic dispensary is supposed to have 86 drugs from EDLA of which 68 were supplied under NAM and rest 18 were supplied by state pharmacy (Table 3). The total drug number now comprises of 31.04% of the whole EDL-ASU. This means at any given point, the medicines available at Ayurvedic dispensaries in Uttar Pradesh are about 1/3rd (or even less) of the recommendations made at EDL-ASU. If the supplies of NAM are removed from the list (and which has been the situation before the NAM supplies began in late 2016). the number would have been a meager 13.71% of EDL-ASU. Most ironically, State run Ayurveda colleges in UP are devoid of drug supplies from NAM and hence run high and dry for want of essential drugs. At any point of time, at such colleges, the medicine availability has never been found more than 10% of what is listed in EDL-ASU.

4. Essential drug supplies as indicator to the quality of health care: lessons learned

Essential drug availability in a health care unit is considered an important indicator to the quality of services offered by the facility. It is easy to understand that to provide essential health services, a facility should be equipped with essential drugs [14]. WHO has recommended specific methods to check essential drug availability in a health care facility comparing to its EML. WHO framework for health systems defines a well-functioning health system as 'the one having equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness' [15]. Access to medicines is also included in the Millennium Development Goals (MDG). Access here has been defined as "having medicines continuously available and affordable at public or private health facilities or medicine outlets that are within 1 hour's walk of the population" [16]. WHO and Health Action International (HAI) have recommended regular facility-based surveys for medicine prices, availability, affordability and price components in order to ensure the quality of services offered by the facilities [17]. Indian National Health Policy 2017 echoes similarly by assuring a universal availability of free drugs, diagnostics and essential health care to all.

Despite many efforts done by its modern counterparts, quality of care delivered at Ayurvedic health care setting has rarely been brought under the scanner and hence is poorly ascertained. Nonavailability of a substantial amount of drugs otherwise, considered essential, in terms of their repeated requirement in a health care setting, is the hallmark of health care quality being delivered at these centers. Availability of resources is globally recognized as the simplest, easiest and most tangible method of assuring the quality of care. In the absence of resources, any quality adherence is beyond expectation. Non-adherence to EDL-ASU at various State run Ayurveda dispensaries poses serious questions about how such services are being planned to be delivered in the state. Sticking to a

Table 2

A Comparison of EDL-ASU and EDLA (UP) for their commonality.

No	Class of drug	Number of drug in EDL	Number of drugs in State Dispensaries	Number of common drugs in both list	Name of the drugs
1	Asava/Arishta	30	5	3 (10%)	Ashokarishta; Arjunarishta; Kutajarishta; Ahiphenasava ^a ; Karpurasava ^a
2	Arka	3	0	0 (0%)	Nil
3	Avaleha/pak/khanda	20	0	0 (0%)	Nil
4	Kwath/kashaya	36	5	4 (11.11%)	Dashmula Quath; Rasnadi Quath; Phaltrikadi Quath; Pathyadi Quath; Jatamansyadi Quath ^a
5	Guggulu	13	1	1 (7.69%)	Yogaraja Guggulu
6	Ghrita	15	0	0 (0%)	Nil
7	Churna (poly herbal)	22	6	6 (27.27%)	Talisaadi Churna; Bilvadi Churna; Pushyanug Churna; Bal Chaturbhadra Churna; Sudarshan Churna; Nimbadi Churna
8	Churna (single)	14	5	4 (28.57)	Haritaki Churna; Amalaki Churna; Pippali Churna Som Churna ^a ; Arjun Twak Churna; Shuddha kupilu
9	Taila	32	1	1 (3.15%)	Pancha Guna Taila
10	Lavana and kshara	7	4	2 (28.57%)	Shuddha Nrisaar; Yava kshara
11	Lepa	5	1	0 (0%)	Shirah shula hara lepa
12	Vati/Gutika	23	6	5 (21.73%)	Chitrakadi Bati; Sanjivani Bati; Prabhakar Bati; Malaria Sanhar Bati ^a ; Raja: pravartini Bati; Chandra Prabha Bati; Karpur bati ^a
13	Varti, anjana, netra bindu	2	0	0 (0%)	Nil
14	Satva	1	0	0 (0%)	Nil
15	Kupi pakva rasayana	2	1	1 (50%)	Siddha makar dhwaja
16	Parpati	2	1	1 (50%)	Shweta parpati
17	Pishti	4	1	1 (25%)	Mukta Pishti
18	Bhasma	12	9	6 (50%)	Abhraka bhasma; Shringa bhasma ^a ; Mandur bhasma; Godanti bhasma; Shankha Bhasma; Swarn gairik bhasma; Shuddha gandhaka; Shuddha Tankan; Shuddha sphatika
19	Mandura	1	0	0 (0%)	Nil
20	Rasa yoga	29	4	3 (10.34%)	Arogyavardhini; Tribhuvan Kirti rasa; Yogendra rasa ^a ; Kaphaketu rasa
21	Lauha	4	0	0 (0%)	Nil
	Total	277	50	38 (13.71%)	

^a Drugs enlisted in UP State EDLA but not in Central EDLA.

Table 3

Drugs supplied under NAM scheme to UP state dispensaries.

No	Class of drug	Number of drug in EDL	Number of drugs supplied to state dispensaries under NAM	Number of drugs in State EDL additional to NAM supply	Total Drugs as per EDL available in a dispensary	Name of the drugs in NAM supply
	Asava/arishta	30	11	2	13 (43.3%)	Lohasava; Arvindasava; Drakshasava; Rohitaka rishta; Arjunarishta; Chandanasava; Dashmularishta; Amritarishta; Kutajarishta; Ashokarishta; khadirarishta; Ahiphenasava ^a ; Karpurasava ^a
	Arka	3	0	0	0 (0%)	Nil
	Avaleha/pak/khanda	20	2	0	2 (10%)	Chitraka Haritaki; Haridra Khanda
	Kwath/kashaya	36	3	3	6 (16.6%)	Trina Panchamula Quath; Phaltrikadi Quath; Dashmula Quath; Rasnadi Quath ^a ; Pathyadi Quath ^a ; Jatamansyadi Quath ^a
	Guggulu	13	5		6 (46.15%)	Saptvinshati guggulu; Kanchanara guggulu; Trayodashanga guggulu; Triphala guggulu; Gokshuradi guggulu; Yogaraja Guggulu ^a
	Ghrita	15	0	0	0 (0%)	Nil
	<i>Churna</i> (poly herbal)	22	9	4	13 (59.09%)	Hingwashtak Churna; Avipattikar Churna; Ajmodadai Churna; Talisaadi Churna; Bal Chaturbhadra Churna; Dashan Samskar Churna; Sitopaladi Churna; Triphala Churna; Lavan Bhaskar Churna; Bilvadi Churna ^a ; Pushyanug Churna ^a ; Sudarshan Churna ^a ; Nimbadi Churna ^a
	Churna (single)	14	4	4	8 (57.14%)	Haritaki Churna; Madhuyashti; Pippali Churna; Ashwagandha; Amalaki Churna ^a ; Som Churna ^a ; Arjun Twak Churna ^a ; Shuddha kupilu ^a
	Taila	32	6	0	6 (18.75%)	Brihat Marichyadi taila; Mahanarayan Taila; Kasisadi taila; Jatyaadi taila; Pancha Guna Taila; Shada Bindu Taila
	Lavana and kshara	7	1		2 (28.57%)	Shuddha Nrisaar; Yava kshara ^a
	Lepa Vati/Gutika	5 23	1 5	0 4	1 (20%) 9 (39.13%)	Shirah shula hara lepa Kutaj Ghana Bati; Chandra Prabha Bati; Chitrakadi Bati; Agni Tundi Bati; Khadiradi Bati; Prabhakar Bati ^a ; Malaria Sanhar Bati ^a ; Rajah pravartini Bati ^a ; Karpur bati ^a
	Varti, anjana, netra bindu	2	0	0	0 (0%)	Nil
	Satva	1	0	0	0 (0%)	Nil
	Kupi pakva Rasayana	2	0	2	2 (100%)	Siddha makar dhwaja ^a ; Yogendra Rasa ^a
	Parpati Pishti	2 4	2 3	0 1	2 (100%) 4 (100%)	Shweta Parpati; Panchamrut Parpati Trina kanta Mani Pishti; Praval Pishti: Alili Pishti, Multa Pishti ^a
	Bhasma	12	5	5	10 (83.33%)	Shuddha Sphatika; Shuddha Tankan; Godanti Bhasma; Shuddha Tankan; Mukta Shukti Bhasma; Abhraka Bhasma ^a ; Shringa Bhasma ^a ; Mandur Bhasma ^a ; Swarn Gairik Bhasma ^a ; Shuddha Gandhaka ^a
	Mandura Rasa yoga	1 29	1 10	0 1	1 (100%) 11 (37.93%)	Punarnava Mandur Tribhuvan Kirti Rasa; Sanjeevani; Rasa Manikya; Arogyavardhini; Arsha Kutha Rasa; Chandramrut Rasa; Kamdudha Rasa; Ekanga Vir Rasa; Ananda Bhairav Rasa; Shwas Kuthar Rasa; Kapha ketu Rasa ^a
	Lauha Total	4 277	2 70 (25.27%)	0 28 (10.10%)	2 (50%) 98 (35.37%)	Saptamrut Lauha; Navayas Lauha

^a Drugs not supplied under NAM but are part of EDL-ASU and also of UP State EDLA.

two decade old EDLA without any updation also expresses concerns about the failure in perceiving the changing demands emerging in Ayurvedic health care. It may not be out of context to mention here that the people visiting government run dispensaries are usually from lower economic strata having a poor affordability and therefore rely largely upon free or minimum cost services offered by the hospital. For these folks, finding the prescribed drugs dispensed for free is a matter of great relief.

Although, the supplies of drugs under NAM offered a little relief in the scenario, the tragedy is not yet over. As most Ayurvedic dispensaries have learned to do without drugs in past many vears, physicians now find it difficult to consume the medicines hurled at them in a hurry and in bulk. There are many drugs in the supply which are not commonly used in practice and hence, may not be easily remembered for their indications. The reason behind hospitals being associated with Ayurvedic teaching institutions are kept at bay from the NAM supplies, is less understandable although its negative implications are fairly perceivable. Ayurvedic dispensaries with less number of patients and less experienced physicians are to deal with rapid influx of the drug supplies seemingly difficult to be consumed. They have Avurvedic drugs to the amount of 31.04% of EDL-ASU. On the other hand, State run Ayurvedic teaching institutions with more number of patients and more qualified physicians get only 13.71% as their share from EDL-ASU.

5. Related dimensions of drug supplies in Ayurveda dispensaries: pragmatizing the solution

The functioning of Ayurveda health care delivery has been brought into question at many other occasions [18]. In the absence of robust mechanisms to monitor the quality, and without a grassroot understanding of what is needed and what is to be done, mere supplies of drugs are not supposed to bring big changes. although the same is indispensible in terms of assuring the availability of resources in order to provide the ultimate services. What resources do we need in order to comply with the demands? Should they come from what is really needed in the primary and secondary care settings in Ayurveda? Until now, Ayurvedic hospitals are not found to have a patient registry explaining the varieties of patients commonly visiting these hospitals. There can be a variation among disease profile being visited at different dispensaries on the basis of prevalence of the disease in a geographical belt. The drug supply should therefore be able to cater to the ground needs rather than merely fulfilling a ritualistic chorus. Actual consumption of the drugs in various dispensaries may also give a pragmatic detail of trend of various drugs consumption in different dispensaries. On the basis of this consumption data, the supplies may be assured from a flexible pool rather than from a fixed pool. At the same time, it should be assured that the supply chain is another crucial issue which, if not addressed well, may jeopardize the whole exercise of providing the quality based health care services. A system of alarm generation to show the stock reaching a critical point is required to be created to avoid supply interruptions by reserving a buffer stock to be able to meet the demands till the arrival of the next supply. Packing size is also a matter of great concern with Ayurvedic drugs meant for dispensing. In the absence of small unit packs, most Ayurvedic drugs are dispensed in large packs eventually leading to the resource wastage if the drug consumption is not desired after a certain period. Regarding the drug supplies in Ayurveda, the first pragmatic step may be to revise the existing EDL-ASU with due involvement of stakeholders through a process of repeated consultations. Its realistic division into core and complimentary groups may follow subsequently. An assurance should be made by every means to make these drugs available everywhere in the country through State run dispensaries. State run colleges and their hospitals are also required to be covered under the scheme in order to meet the larger and specific demands of their own patients. As an immediate measure, the physicians in remote areas with less consumption of medicine may be given a reorientation about the uses and indications of the drugs under new supplies to assure an effective utilization of the supplies. A pool of medicine may be generated and linked with a real time information system so that the medicine may be reallocated within the identified locality from dispensaries having unused surplus stock to those having a deficit and have additional demand.

6. Conclusion

The question of quality check in terms of services delivered comes only later to the provision of every resource needed to enable a full scale operational service. Once the resources are fully met and the services are fully operationalized, we can think of evaluating its quality to make it further better. However, we seem still far from this eventual goal of quality health care in Ayurveda in most State run setups in the country.

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None.

Conflict of interest

None.

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