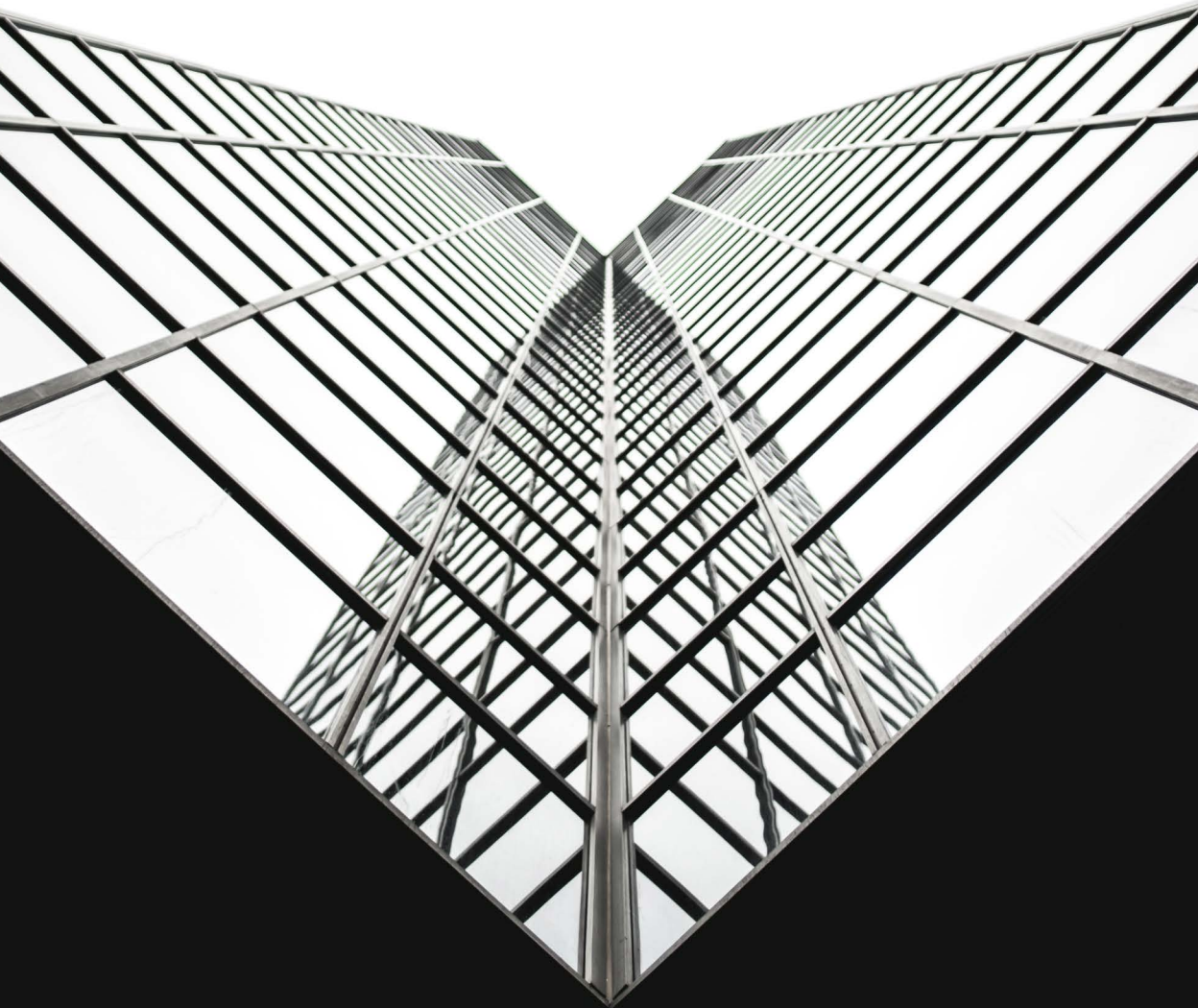


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DISRUPTIVE CHALLENGES





FOREWORD

This unprecedented challenge which has come from COVID-19 has disrupted our work culture as well as entire way of operations and communications. It has also disturbed earlier business model and we need to rethink in terms of gathering pieces and developing a new robust model depending on organisational strengths and opportunities.

It is a usual tendency to worry about non-controllable and invests time in correcting those that may or may not yield results in turbulent times. It is equally important to look at controllable, strength, immediate opportunity and develop a directional matrix for sustainability and scalability.

Being a leader and navigating the organization, it is imperative to focus at this moment on FY 2020-21 with short term, medium term and long term goals along with capability of teams to execute.

At this juncture depending on the stature of organization, few actions can be taken on directional matrix, keeping focus on both sustainability and growth. Many a times mid-sized and small sized organization focus on their immediate numbers and goals instead of focusing on providing strategic direction and weaving actions and outcome for the short term or immediate goals.

Way to look at turbulence:

Turbulence is usually a wave sometimes it rocks the boat or creates very unfamiliar environment to sustain and grow. In such situation, few areas which can be monetized on the basis of strengths of the organization are:

- a. New potential markets
- b. Backward integration
- c. Forward integration
- d. Acquiring, Building and using Financial resources for the benefit of organization
- e. People motivation

Those who can spot opportunities even in this turmoil may encash those islands of performance and excellence in few areas of business which can become very leveraging factors for the organization.

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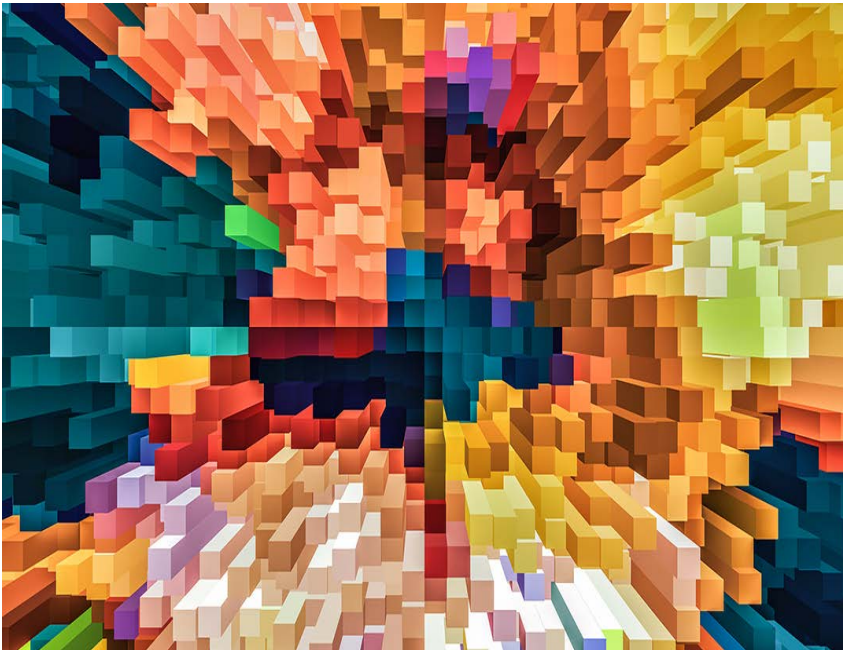
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COVID-19: Disrupting the Healthcare Business' Practices



*The present crisis will make a new difference in the human kind's equation to 3ps i.e. People, Planet and Profits. It will help in making each of us more humble, caring, empathetic and self-sufficient; create more awareness about the importance of preserving and protecting our planet and its air, water and food resources; there will be a corporate behavioural shift where more importance will be given to people and planet over profits. - By **Dr. R. B. Smarta***



The COVID-19 (ARV- Acute Respiratory Virus) pandemic is disrupting and challenging the entire world like never before. I believe that it will help in making companies the world over more humane than being just profit-oriented. The social distancing will, in fact, help in bringing the people closer.

The present crisis will make a new difference in humankind's equation of 3Ps i.e. People, Planet and Profits. It will help in making each of us more humble, caring, empathetic and self-sufficient. These times will create more awareness about the importance of preserving and protecting our planet and its air, water and food resource. There will be a corporate behavioural shift where more importance will be given to people and the planet over profits.

Profits need to be earned, as they have five vital functions to play in business. Business need to be sustained for future so that they can be prepared for 1) Any sudden changes in technology and disruption and business becomes vulnerable, 2) any calamity like COVID 19; 3) Any sudden economic requirement arises due to an amendment in corporate laws, 4) yearly welfare of people through increments, 5) Reward of risk taken by owners or investors. It is vital for any living company to make profits, but not to have a profit-ring attitude!

Throughout the world, the global pharma industry (including India, US, and Europe) depended on China for the raw materials and active pharma ingredients (APIs) needed to make the final products. Many of these economies faced severe issues in securing ingredients on time during the present crisis. From now on, the governments of these countries will not allow them to be over-dependent on China. India is no exception.

I can see the Indian government encouraging more startups to manufacture many of these raw materials and APIs to make the economy self-reliant. Also, multiple non-pharma and non-healthcare players would enter the sector and invest in manufacturing of APIs (Active Pharmaceutical Ingredients), generics, medical equipment and wearables. It is the right time for Indian medical start-ups to make wonders in the global healthcare arena.

The global pharma industry will move from a product-centric approach to a people's need-centric one. Till now, it used to be purely product-centric – meaning that first a product was launched taking into consideration the market benefits, before taking it to patients. However, I believe, the situation would change after the present crisis. There would be many industry leaders, whom I believe, would plan, design, research on new pharma molecules based on what the society's healthcare and medical priorities are. Profits will come on its accord.

There will be increased adoption of data analysis to understand disease patterns, patient responses and drug development would be based on that. More plans and methods will be developed for better patient engagement, better accessibility to

doctors and medicines, and increased patient adherence. There would be use of more evidence-based, therapeutic tools. I would say, all of this would make the industry more socialist.

The ongoing situation will accelerate the digital transformation of healthcare or e-healthcare. It will lead to more e-health usage and accessibility in the country – be it in the area of telemedicine, electronic health records, medical billing software, hospital management systems, telemedicine, patient management programmes, healthcare wearables. There will be more usage of video-conferencing through zoom and skype calls.

Jugaad will work hand-in-hand with innovation. During the present crisis, we have converted train coaches into ICU centres and isolation wards. Likewise, our labs have been able to develop low-cost ventilators during this time of need. Why cannot our-start-ups continue to do the same even after the crisis?!

Staying at home, people would realise the importance of balanced nutrition, sanitation and sanitisation. Even after the pandemic is controlled, we are going to move forward with our newly acquired habits. In effect, we are becoming an inclusive healthy society in this challenging time. New family bondings will be created. This is the perfect time to go higher into spirituality. The new moment is inspiring healthcare and scientific research institutions in the world to leverage all their might to find new solutions towards bacterial and viral resistance.

<https://www.expresspharma.in/latest-updates/covid-19-disrupting-the-healthcare-business-practices/>

About the Author:

Dr. R. B. Smarta- Founder and Managing Director of Interlink Marketing Consultancy Pvt. Ltd. Being a thought leader in Pharmaceutical, Nutraceutical and wellness industry, he has been contributing globally through Interlink Consultancy and building business performance of his clients for 33 years. Having a Master's degree (M.Sc.) in Organic Chemistry in Drugs, MMS in Marketing, PhD in Management, and FRSA (Fellow of Royal Society of Arts) London, he is-perusing his passion of converting science to Business.

Besides being a consultant, he has been teaching at IIM, prestigious management institutes, Pharmacy College, Pharmacists Associations, guiding PhD students and written as many as 7 Books on Management, Pharma, Nutra, Foods domain, and many articles in prestigious journals/magazines.





Eat With Innovation

Ancient Indian food
science - source of today's supplements
and nutraceuticals



Let thy food be thy medicine and medicine be thy food', often ascribed to Hippocrates (400 BC), and used to emphasize the importance of nutrition to prevent or cure disease. And the origin of this new steam of science lies in our food. This article will help us to understand the continuum of this journey from food to the traditional medicines to Nutraceuticals. -By [Dr. DBA Narayana](#)



It is not exaggeration to state that today's supplements and nutraceuticals began their journey from our food. There is a continuum of food on one side and medicines or drugs on the other. This continuum in the last 2 decades have stretched to foods – traditional foods - supplements – nutraceuticals – foods for specific dietary use – foods for specific medical purposes – medical foods – para medicines – traditional medical recipes – drugs.

Fig 1 is a representative diagram. Circle 1 denotes primary nutrients – carbohydrates, proteins and fats. Circle 2 denotes macro and micro nutrient providing foods. Circle 3 denotes continuation of circle 2 but nutrients and nutritional that are adjuvants providing specific health benefits including absorption modifiers. Circle 4 denotes more of circle 3 providing synergistic support to nutrition, provide fluids and a number of phytonutrients which have not yet received recognition as nutrients like vitamins and minerals. There is a specific order in which food is to be consumed in India which is based on scientific understanding and implementation that promote not only happiness of having eaten but also ensure proper digestion, assimilation, and absorption of nutrients as well as ensure proper excretory functions while giving health maintenance properties. This order is specifically applicable in a tropical country like India and differs vastly from the western way and order of food consumption. (The circles shown on the banana leaf can easily be extrapolated to a thali).

Fig 2 is self-explanatory to trace the nutrient / nutritional source of each of the item on the platter or thali.

Brief description of content / role and activity of some of the important constituents in these circles:

1. Primary nutrition in circle 1 may vary from rice / wheat / millets / lentils / meat / fish / oils / fats like ghee – all providing primary carbohydrate, proteins and fats. These are all the major building blocks of life providing energy.
2. The sweet, small quantity that we consume before starting to eat primarily provides sugar, milk, and dry fruits and high in flavor. Its consumption initiates high salivation so that the body is prepared to receive food, lubricated adequately and initiate digestive process.
3. Number of dishes primarily made of either soaked and germinated or cooked lentils provide apart from additional proteins a number of nutrients like – prebiotics, fibers, vitamins, amino acids and salts. Number of dishes primarily varying types of cooked or uncooked vegetables also does the same function.
4. A few dishes like pickles, chutneys and sauces provide antioxidants, salt, souring agents and acids all of them adding to palatability, promote digestion apart from providing many micro nutrients.
5. A number of liquid items, like rasam, sambar, are used to consume the primary nutrients. These are meant to provide additional vegetables, lentils, and more importantly water so essential to promote digestion. These items are ingested with a number of spices and condiments in varying proportions each of which not only provides many micro nutrients but most importantly promote digestion, immunity,

neuroprotection, absorption of iron and many other nutrients, glucose and fat metabolism, protect liver functions, manage diuresis, prevent constipation and several other health benefits.

6. Most often the Indian food ends with drinking of butter milk or consuming curds, source of probiotics that calms the stimulated GI tract due to spices and other foods apart from providing replenishment of the gut bacteria and promoting digestion. Modern science has been applied to fractionate, isolate, concentrate, characterize nutrients and nutritional from a number of items described above and offer them either as supplements or as nutraceuticals. Large amount of scientific evidence has been generated to demonstrate the safety profile, nutrient role, health benefits accruing due to consumption of these supplements or nutraceuticals. The term nutrient applies to well documented food ingredients comprising of vitamins, minerals, amino acids and nucleotides. Supplements normally refer to concentrated source of nutrients most commonly obtained from plant or animal or microbial sources. Nutraceuticals are normally either purified fractions or well characterized single chemical entities. Nutritional is a term normally used for those which are not nutraceuticals but fall under supplements category.

Health benefits of supplements and nutraceuticals sourced from botanicals of history of use in India and from use of spices have attracted global attention and many of the health benefits have been proven adopting contemporary scientific tools. Next time you have “curcuma latte” remember your dadi asking you to drink a glass of milk each night to which half a spoon of our dear haldi (turmeric) has been added.

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Dr. Anantha Narayana, a recipient of the Eminent Pharmacist award 2007, of the Indian Pharmaceutical Association, is an M.Pharm from Saugar University (MP) and holds a PhD from Delhi University. He has worked at various departments at Ranbaxy Laboratories Ltd for over 10 years, including a 2.5 years stint at RLL, Nigeria. He later joined Dabur Research Foundation (DRF) as a Manger R&D and rose to become its Director. He is credited for the phenomenal growth of Dabur during his tenure as research head and led a team of researchers to develop launch anti-cancer drugs, Ayurvedic drugs, cosmetics, food products, honey and a large number of herbal products built with science and technology.





Orbit Catching Innovation

Financial implications of Innovations



Funding is a critical part of any business to start with. It enables the innovator to have capital to invest in continuous development and growth of company. In today's scenario, where market is down showing business revenue model to gain capital from banks or venture funds is challenging. This article shortly elaborates various financial models for innovations to grow further. - By [Dr. Girish Jakhotiya](#)



The pre-requisite to understand the financial implications of innovations is to appreciate the “process of innovation”. This will lead you towards differentiating the risk and uncertainty involved in the innovation. Further, based on objective of the process and the end-consumer, you will have to appropriately study market and sociopolitical factors depending on your goal, but don't forget your financial implications will be based upon this study.

Just for example, if I want to fund a company launching Nutraceutical ingredients, then I have to study market before funding to know the market feasibility. The outcome of the market study will answer my question 'is Indian nutraceuticals market profitable?'

On the other hand, if I want to carry out research on food habits and improving the life cycle impact of food intake in an advanced country such as US, then it would have been less sensitive on sociopolitical factors and I will have to focus on market conditions based on commercial sustainability.

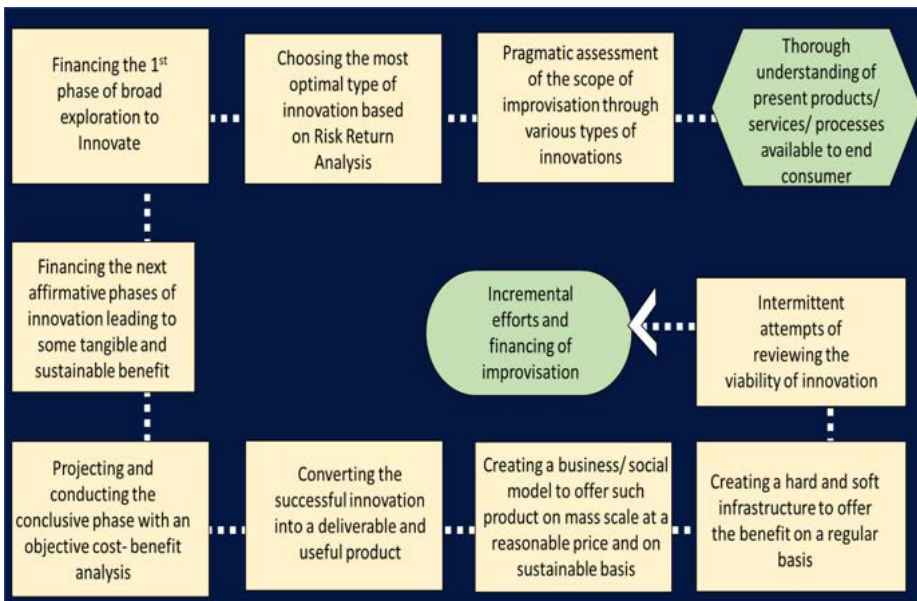


Figure. 1: Value chain of Innovations

The above chart describes generic explanation of entire value chain of innovation for understanding of the financial implications of innovations.

Financing of Innovation based on “Product Life Cycle” concept:

The entire capital funding and recurring cost of innovation are to be spend over a reasonably predicted life cycle of a product. Such an accounting and cash flow management become convenient for all stakeholders involved in this process. This helps in making the financing of innovation a viable process and hence acceptable to stakeholders.

Innovators should present their “projected efforts” with clarity on the life cycle to the financiers. This would assist financiers to take appropriate decisions.

Few financial models for innovative ideas are as follows;

Financing models of innovations:

The financing models of innovations are defined by either purpose or period or process of innovation. It depends on the financier what kind of model he would like to go for. As depending on the requirements various permutations and combinations of financing of innovations can be made that are suited to innovator and financiers. Few important are as follows;

Equity model: The innovator and financier invest the sum by equally sharing risks and returns associated with project. Thus, we can say financier acts as a co-owner. Normally a financier would look for long-term offering and sustainable returns for investing funds through the equity route. Innovation projects carried out with a Public Private Partnership (PPP) are mostly funded through this model. The government and private enterprise are equal “equity partners” in PPP.

Takeaway Finance model: This model is suitable for those financiers who want to participate in a specific phase of long-drawn value chain of the innovation project with specific combination of risk return. For example, an ambitious venture financier may invest in first phase of primary exploration of innovation for a very high rate of return. This phase is full of uncertainty. After the project is successful, he will withdraw his funds and will be replaced by regular financiers. Regular financiers are satisfied with moderate rate of return as they are ready to take moderate risks. Once the product is ready for use, the regular financier may also be replaced partially or fully depending on their terms by ordinary investors.

The “take way” financing is the journey of financiers from one milestone to other. Each financier enters and exits the project based on his appetite for risk and return.

Consortium model: Different financing agencies together form a consortium to fund mega innovation project. Each member participates in the project with different intentions. Financers may choose a suitable innovation project, and its members would bring in funds proportionately based on their investment needs. They may jointly decide on an average rate of return on their total investment based on their individual rates of cost of capital.

Structured finance model: The innovator and financier together structure a financing deal based on their requirements. They try to match their mutual needs of cash flow, paying capacity, fiscal factors like tax planning, subsidy claims etc., portfolio need like financier's investment mix and so on.

Public finance model: A government may raise funds from public institutions like Pension and PF and the public who have a fair interest in the proposed innovation, but only when innovation is leading to successful making of public goods. Such public finance may flow through different types of voluntary and compulsory methods.

- People at large may be compelled to pay an innovation cess over and above their normal tax liability.
- People may be issued small size bonds with long-term maturity, whereby maturity period may be equated with positive returns duration of innovative project.

Reuse finance model: This model can be used by rich and poor nations. Rich countries can invest enough sum in R&D and they mostly bring innovations for social benefits. These innovations if they wish can be offered to poor countries at a considerably subsidized price. Thus, the Re-Use financial model may be participated by group of poor countries so that cost is shared. This may facilitate the innovation projects be conducted by rich nations using natural infrastructure of poor nations. A suitable valuation model has to be designed to decide an exchange ratio between rich country's innovation and poor country's environment support.

Innovation fund model: A few corporations may create an innovation fund which would promote small and medium-sized innovation projects or sponsor innovation projects at universities and research institutions. The researchers are given pragmatic targets for innovations of "applied nature". They are encouraged through special incentives constituted by the innovation fund. In some cases, the researchers and the innovation fund may jointly own the intellectual property rights of the project.

Monitoring mechanism of the financing of innovations:

Both the innovator and the financier need to monitor the use of funds being apportioned to an innovation project carefully. The detailing should facilitate the preparation of performance budget and financial budget of the project. Budget should also define a few warning signals. These will alert the innovator about wasteful use of funds. A pragmatic deadline should be mentioned for the completion of project. A cutoff point should be defined as to when the innovator should abandon or alter the project. If financiers are assured of productive and proper use of funds, they may overlook genuine failures.

Conclusion:

Financial implications of innovations should be systematically addressed so that they do not adversely impact on the very purpose and process of innovation. Different type of innovations and their respective beneficiaries would decide the choice of suitable financing model. Any innovation, social or commercial, should be financially viable so that the final price charged to the end user is appropriate. Precious public resources can be effectively used for socially useful innovations if financial discipline is observed.

Note: This article is part of Chapter- Financial Implications of Innovations written by Dr. Girish P. Jakhotiya. This chapter encloses various Financial aspects of innovations. Please refer to below mentioned link for entire chapter;

https://books.google.co.in/books?id=DvHRBQAAQBAJ&pg=PA501&lpg=PA501&dq=Financial+implications+of+innovations-+Dr.+Jakhotiya&source=bl&ots=lhtaJYPGv_&sig=ACfU3U2CTIgfuf66elxUFBfgwZQqQ9KKHA&hl=en&sa=X&ved=2ahUKEwiC4u6S3KrnAhUFjeYKHwYlDIAQ6AEwAHoECAoQAQ#v=onepage&q=Financial%20implications%20of%20innovations-%20Dr.%20Jakhotiya&f=false

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Dr. Girish Jakhotiya is a renowned management consultant, educator, researcher, author and speaker. He has offered consultations to more than sixty multinational and

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Transition to be Launched



*With Artificial Intelligence (AI) all around the world, figuring big data points is a basic prerequisite in marketing segment. Many pharma marketers must be strategizing to target customers with specific messages like Amazon does. The way to engage customer lies in choosing right marketing channel, specific content with cadence. - By **Ms. Titiksha Shinde***



Need of the generation:

With Artificial Intelligence (AI) all around the world, figuring big data points is a basic prerequisite in marketing segment. Many pharma marketers must be strategizing to target customers with specific messages like Amazon does. The way to engage customer lies in choosing right marketing channel, specific content with cadence. Today sales and marketing teams' function in silos. Their lack of coordination and planning leads to marketing to same customer multiple times. Eventually after three to four call times, reps observe that customer lose interest and are dissatisfied leading to poor output.

The way out to this marketing challenge is to address personalized promotions, to harmonize ideas across all marketing channels and to tap customer requirements to have better customer engagement. You need to have personalized promotional material for each product, work in sync to have centralized ideas that will direct you towards one goal and be consistent across all marketing channels addressing one idea or in case of multiple SKUs whereby customer is same. Marketing of products can be done periodically across all channels. Well, let's put some light on a new hyped word- Hyper personalization.

Today's status:

Today's period is customer centric because of their smart networking skills. Hence, it can also be termed as hyperconnected customers. With digitization the limitation to gain knowledge and information from various sources has ended and this has empowered customers to make better choices for themselves.

Thus, the industry has entered a phase whereby organizational metrics of success will be dependent on their alignment with customer success metrics. Well, this is supported by our user-friendly Internet, that has created irreversible networking system, accelerating globalization with technological outburst.

A very inspiring line from Jeff Bezos, CEO, Amazon- "We see our customers as invited guests to a party, and we are the hosts. It's our job every day to make every important aspect of the customer experience a little bit better". These words are self-explanatory to understand the importance of customers for a giant player like Amazon which is in top 5 ranking of world largest companies with valuation of around 916 billion USD.

With growing opportunity there comes many challenges for marketers to address their message efficiently across wide categories of customer groups with fragmented data of customer experience. Thus, the biggest challenge for marketers is to connect dots and reflect accordingly. To assure no one moves your cheese, differentiate your brand and make it stand elegantly.

Tapping health data:

It seems to be very expensive but it is not! Even small companies who cannot afford to hire data scientists and invest time in data analytics can tap big data. This can be achieved by means of cloud computing, open-source software; software as a service have changed the ways to deal with data. Inexpensive ways to deal with amassing big data are emerging all the time. For example, Kaggle- founded in 2010 by Anthony Goldbloom and Jeremy Howard, the company seek out to make data

science a sport at affordable prices. Well, how they manage is they rent their data scientists to work for you. You just have to post a data project by selecting an industry, type (public or private), participatory level (team or individual), reward amount, and timetable. It is less expensive than actually hiring a data scientist.

Now question arises from where will you tap data? There are data brokers such as Acxiom and DataLogix, who can provide companies with extremely valuable data at reasonable prices. Briefly, DataLogix links offline purchasing data to digital media and helps in targeting audience. They obtain and track offline and online purchasing behavioral patterns with the use of data obtained from retailers' loyalty card programs. This loyalty card programs include rewards that fall into four categories; points, tiers, social media, and paid programs. DataLogix is now part of Oracle Data Cloud, and provides consumer profiling details that power process of personalization.

In case of pharma, traditional loyalty programs won't play major role as they emphasize on benefits to stimulate member growth – but in the world of pharma, the promise of effective health maintenance can be an even greater motivator. This position is supported and reflected by consumers' own behaviors. In a US based study in 2014, pharmacists observed that 20% or more of time is invested in patient care services apart from dispensing medicines. To validate the results, public opinion poll was conducted in 2017 wherein there were 2000 registered voters. As per the votes, 70% consumers prefer pharmacies because of convenience, 42% because of accessibility and merely 32% mentioned cost as one of the facts to choose pharmacy.

Thus, to have a pharma loyalty program, we need to focus on our consumer behavior to observe the consumer trend and their requirements.

Unknowingly, Pharma industry is moving towards personalization, whereby wearables, ingestibles & implantables are assisting in monetizing disease management programs at individual level. The model that helps us to do so is Ecosystem model. Ecosystem model allows you to focus on customer needs and help you to understand patient engagement, multi-channel and omni-channel communication strategies and sensors combined with patient data to predict future specific conditions are moving towards hyper personalization. What we need is to tap data points, whereby health data which can be actually termed as “Big Fit data” which will help us to deliver personalized solutions.

Application of Big fit data at base levels:

Hyper-personalization can be applied in clinical analytics to provide personalized treatment, monitor health, provide service remotely, map patient's journey and for decision making to improve healthcare outcomes.

Government officials can help identify disease pattern and understand them at regional, national levels. This will further help in developing health policies, insurances and awareness programs, and respond well in healthcare emergencies.

Pharmaceutical companies can use data points to group their target audience and depending on customer requirements they can plan their R&D, sales & marketing, financial budgets, using advanced analytics, artificial intelligence. Machine learning

can be utilized in drug discovery, market feasibility study and in customer engagement programs.

Predictive analysis would help in lowering attrition and assist in developing targeted R&D pipeline. Analyzing structured and unstructured data from various data sources, like EMRs, clinical data, genomic data would be hassle free and prediction of patients at risk or readmission would assist in providing proactive care.

In future, AI would accomplish gene sequencing more efficiently and a day when genomic analysis would be part of regular medical care is not very far.

Moreover, the man of the match that is patient himself can self-encourage to be a proactive participant in the overall care process, whereby he will be the controller and decision maker of each and every healthcare process.

Few facts of Hyper-personalization:

Let's know more about Hyper personalization. It is customer marketing but targeting specific needs. It is advanced marketing where it leverages artificial intelligence (AI) and real-time data to supply more relevant content, products, and service information to every user.

Journey of Hyper personalization as a whole is intense personalization. Applying it to Pharma industry whereby we are stuck at segmentation which is a basic level of Hyper-personalization. Beyond segmentation is behavioral recommendations, omnichannel optimization and predictive personalization.

Top brands like Amazon, Starbucks, Netflix have reached to level of predictive personalization whereby AI & Machine learning analyze our day to day data points which is known as “Big data” that involves host of factors to power recommendation engine. They have access to data points such as name, requirement, average time spent on search, purchase history, favored brands, etc. using this, they craft a highly personalized email showing you relevant items. Some highlights to make you realize the importance of personalization,

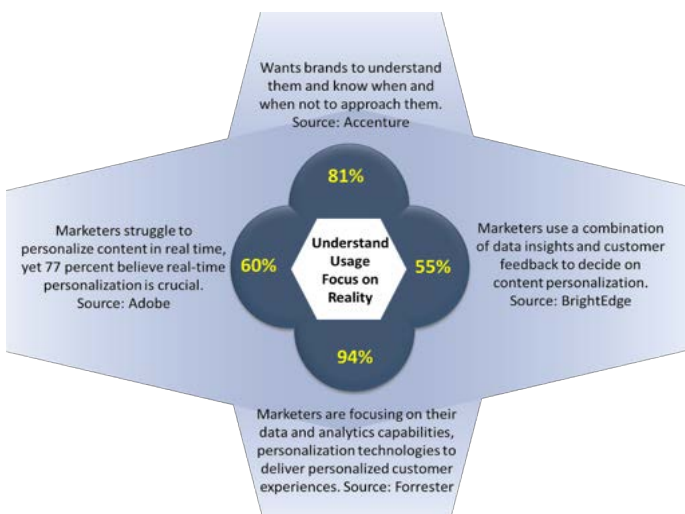


Figure.1: Facts of personalized marketing

Google Health initiatives:

Google health has started a “Project Nightingale” which aims at gathering personal health data from hospitals in US. The project was started secretly in 2018 with St. Louis-based Ascension, a catholic chain of 2600 hospitals, with the objective of gathering patient health data. The data includes lab results, diagnosis reports, hospital records, patient history, radiology scans, medications with patient name, address, family members, allergies, immunizations and date of birth.

Fed data is instantly uploaded on Nightingale system, based on the data system suggests outcomes like treatment plans, tests, notifies unusual deviations if any, replacement or addition of doctors as per healthcare requirement, additional enforcement of narcotics policies etc. bill will be generated depending on different procedures. Well, as it was an undisclosed project based on federal health law including robust protections for security of patient's data, the doctors and patients were not notified.

Google is using this data to prepare new software, supported by advanced artificial intelligence and machine learning, that suggest respective changes if required in the care and treatment. The goal for Google health care is centered on “ultimately improving outcomes, reducing costs, and saving lives.” This data would never be used for advertising purpose.

Like Uber and OLA disrupted taxi business using digital ways, OYO disrupted hospitality industry, soon there will be X company that will disrupt traditional way of pharma industry. It's not like people don't know what is going around, what is required is quick action and implementation.

As quoted by Vincent van Gogh; “Great things are not done by impulse, but by a series of small things brought together.”

So, writing on the wall is to Accept Reality, Reimagine & Transform IT & AI skills.

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About the Author:

Ms. Titiksha Shinde, is a senior Research Associate in Interlink Consultancy and has worked on projects like Business Due Diligence and Go-to-Market launch (Pharma). She has assisted in writing more than 16 pharma articles published in reputed magazines like Express Pharma, Asian Hospital & Healthcare management Magazine, Pharmabiz. Also, she has individually published articles on “Briefing pharmaceutical industry and its

dimensions” in In-house published magazine “Interlink Insight”. Being a post graduate in pharmaceutical analysis she has presented her major thesis in “Method Development and validation in Antimicrobial Herb”.



Growth of Bangladesh Pharma Industry



Pharma sector is said to be one of the promising industrial sectors of Bangladesh. The domestic pharmaceutical market was valued at \$24.23 billion in 2018. The CAGR, for five years stood at 15.6%. As a Least Developed Country (LDC), it got exempted from the obligation of patent and data protection, valid until 2033. But looking at the development, economic growth of country it is under observation up to 2021, thus, is likely to leave the LDC category by 2024. Looking at challenges and some of the market opportunities the market of Bangladesh seems to be stable and attractive for the purpose of business expansion. - By Ms. Kratika Richhariya.



Overview:

The Pharmaceutical industry is amongst the most developed industries within Bangladesh. It is the second largest contributor to the country's economy. The manufacturers in the country meet about 97% of the total local demand and import specialized products like vaccines, anticancer products and hormone drugs to meet the remaining 3% of the demand.

R&D and manufacturing facilities: Based on facilities, the market can be divided into three major segments. The first segment encompassing R&D activities, second segment would cover the aspect of Active Pharmaceutical Ingredients (APIs) and third segment would encircle around finished products.

Firstly, Pharmaceutical R&D facilities are very expensive and involves high-risk business. Thus, the involvement of local companies seems to be nil in R&D sector and all the firms are focusing on production of known and established drugs.

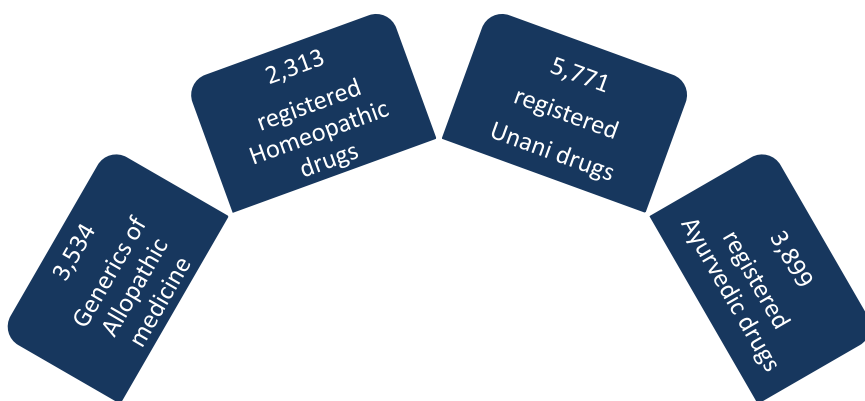
Secondly, in case of raw materials 99% are imported mainly from India and China. Regarding APIs and excipients, 20% of requirement of APIs are contributed through domestic production. The rest 80% is imported. Large sum of money invested in importing raw materials leads to upward pressure and restricts the development of pharma industry.

Thirdly, regarding final products, both patented and generic products are considered. The production of generics is on a high scale. The market share of generic drugs is around 80% and of patented drugs is 20%. There are more than 3000 generic manufacturers.

Glance at the industry of medicines:

Generic drugs account for the majority of the production at 80% and the rest 20% is composed of patented drugs.

According to Director General of Drug Administration (DGDA), the industry has;



Source: Interlink Knowledge cell

Figure.1: Industry of Medicines in Bangladesh

The Pharmaceutical industry is growing at a CAGR of 15.6%, greater than the growth rate of the nation's GDP of about 7%. The industry is set to achieve a value of \$5.11 billion in 2023 from the current \$2 billion.

New avenues: Exports

The export is valued at approximately \$130 million in FY19. In last two years, around 1,200 pharmaceutical products received registration for export. Some of the top key players have received certification from US FDA and UK MHRA to get entry into regulated markets. For e.g. Beximco Pharma, is a leading exporter to the US and has received US FDA certification, while Square Pharmaceuticals and Incepta received UK MHRA certification to export to UK market.

With large capital investments and legislative bindings, the barrier for entering the Pharmaceuticals market is high. This has led to a majority of the market share to be concentrated among few local companies.

The major 10 players in the industry hold close to 70% of the entire market share; the top companies are SQUARE, Incepta Pharma, Beximco, Oponin pharma, Renata, Healthcare pharma, A.C.I, Aristopharma, Eskayef, Acme, etc. MNCs such as Novartis, Sanofi and Novo Nordisk are few and far between with a market share of less than 10%.

Market growth drivers:

The pharmaceutical sector in Bangladesh has seen a remarkable CAGR of 15% in the period of 2012-17. The industry has benefitted due to the 'Least Developed Country' (LDC) status by being exempted from the Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement. It is in this period of policy and economic relaxation that Bangladesh holds a great potential to grow and establish a footing in the world market.

A few of the drivers that are aiding the growth are described as follows:

1. Economic Growth of the country: Bangladesh has consecutively achieved a GDP growth rate of greater than 7% for the years 2015-16 and 2016-17. The World Bank has predicted that the trend will continue through the years till 2020 with GDP growth rate between 6-7%. The country has targeted to enter the socio-economic classification of 'Higher middle-income group' from 'Lower middle-income group' by 2021.

With the increase in GDP growth, the per capita income is likely to rise. This will lead to higher health care expenditure by both individual and government.

2. Population Growth rate: Bangladesh is one of the most densely populated countries (ranked 13th in the world in terms of population density) in the world with 166 million people. According to World Bank and World Meter, from 2008 to 2017 average population growth rate of Bangladesh is 1.1% annually. This drives the demand as consumption rate is high and the growth of Pharmaceuticals sector.

3. Growing Income level of people: The per capita Gross National Income (GNI) rose from \$1,465 in 2015-16 to \$1,610 in the FY 2016-17. Average income has grown by 9.4% from 2015-16 to 2016-17. With an increase in this disposable income, individuals are able to allocate more funds towards medical expenditure.

4. Health awareness of mass people: Pharmaceutical sector is expected to grow as the general population is becoming more aware of healthcare. Even WHO and

other health organizations are generating health awareness. With digital advancement, gaining knowledge is on finger tips. Granulating and drilling down to know the health concepts can be easily achieved via Google and other search engines. In addition to this, increase in the number of elderly populations has resulted in heavy reliance on medications for well-being and care.

5. Geographical location: The geographical location of the country is such that natural calamities, like floods, tropical cyclones, tornadoes, and destructive waves or floods disturb the day to day lives of people. It particularly affects the coastal belt almost every year. Recently, in July 2019 rainfall, around 4 million people's lives were at risk, due to food insecurity and illness. Thus, the requirement of drugs is too high.

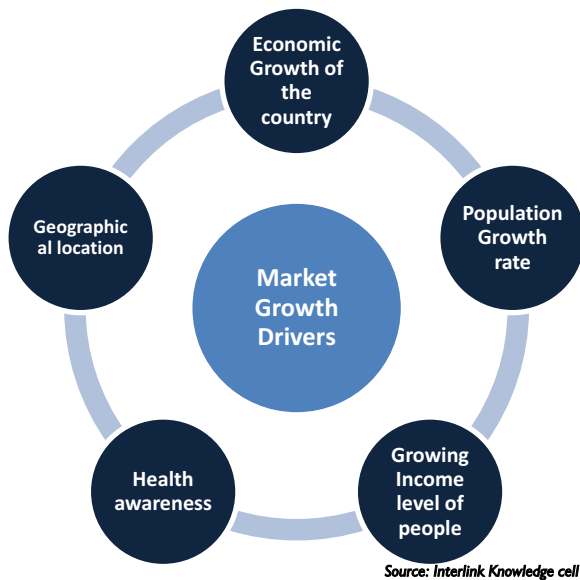


Figure.2: Market growth drivers of Bangladesh pharma industry

Opportunistic challenges: Despite transit challenges, Bangladesh and India are friendly neighbors. Thus, instead of looking at challenges as a problem, if we look at them as opportunities to expand our business, we can overcome those challenges leading to an amazing and profit generating business deal.

Let's look at some of the major challenges;

Access to essential drugs: Case studies and surveys conducted in four district hospitals and one medical college has indicated that only eight percent of patients received the prescribed medicines from these facilities. In another report, two major hospitals in the capital city of Dhaka were operating without essential medicines for eight consecutive weeks. There are countless such incidents relating to the supply of essential medicines in Bangladesh. In most such cases, government officials and health professionals are responsible for the shortage as they often sell government-supplied drugs to local drug stores instead of dispensing them to poor patients. Thus, managing the production and supply of drugs taking initiatives of government and unmet needs of people into consideration might prove to be fruitful.

Quality of available drugs: Some of the facts that have been stated in reports, claim that only the top 20-25 out of around 300 pharmaceutical companies in Bangladesh produce drugs of standard quality. There are various spurious or substandard drugs, including essential lifesaving drugs flooding in market having an estimated value of \$ 150 million per year. There are around 265 pharmaceutical companies in Bangladesh that do not follow or comply with Good Manufacturing Practices (GMP) requirements. These companies form less than 15% of the total market share. Thus, targeting those companies that lack quality control facilities can be directed towards GMP and USFDA approvals, as these initiatives will help the companies to enter into regulated markets and expand their business in overseas nations.

Research and development: The R&D sector is often a very costly and high-risk business. Thus, it accounts for the majority of costs for many of the global pharmaceutical firms. However, in Bangladesh, R&D activities have not taken deep roots and most firms prefer to produce known and established drugs. Looking at the API and raw materials, API park and advancements in the country, it seems the next decade would be of R&D. Also, the contribution of top local companies and MNCs is quite reliable. An in-depth research study to know the disease profile, rare diseases and unmet needs of patients, can help in developing the products as per requirement.

Summary:

- Overall looking at the market scenario and opportunistic challenges, the companies are capable in production of formulations having diverse dosage delivery forms and are striving towards international accreditations.
- Bangladesh is highly dependent on imports as almost all the raw materials and most APIs are imported from countries like India and China. Thus, to reduce the dependence on imports, Bangladesh government took initiative to set up API park.
- The companies are looking forward to expand their business globally. As the cost of labor is 4-6 times cheaper than India, expanding businesses like clinical trials, contract manufacturing of APIs, support in terms of Quality Control can lead to growth.

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Reshaping Patient Experience

Patient Experience:
The Past, Present and Future



Looking at the market shift from industry centricity to patient-centricity, patient care is a core element of quality of care. Patient perspective is a critical parameter that should be captured using tools and techniques, as it helps in shared decision making and permissively shows the impact of care on patient's experience. As we follow the thought- past is experience, present is experiment and future is expectation, use patient experience to conduct ethical experiment to achieve tomorrow's expectation. Tools capturing patient satisfaction and medical outcomes might guide HCPs to understand various nascent aspects of care which will improve quality of the patient care. - By Ms. Titiksha Shinde.



The word 'patient experience' is subjective to the factors not directly associated with the quality of processes. The measurement of patient experience is complicated by numerous terms and usages that have been applied to. Therefore, patient experience is seen as central outcome alongside clinical effectiveness and safety. Despite the convoluted surrounding which definition to embrace or which components to measure, the patient experience in a healthcare context incorporates the patient's journey as a whole and that is practically, managerially and clinically important concept to measure.

It is of utmost importance to know the experience of patients and their family and friends in an attempt to improve the services that are available, furthermore to enhance strategic decision making, to improve care and meet patient expectations and effectively manage and monitor health care performance besides it links to clinical outcomes and costs. In order to get an insight on patient experience, different approaches are carried out based on the depth of information provided by patients and the extent to which the information is collected, that may be generalizable to wide range of population. The common approaches include surveys, interviews and patient stories.

Descriptive investigation: The literature on quality of services provided is not so enough to provide a base to prove the facts of lack of quality services. Hence, qualitative study must be undertaken to investigate the concept of quality services. For instance, focus group interviews with patients and executives of management of healthcare organizations can help to develop conceptual model of quality services. Qualitative study covering five nationally recognized hospitals, interviews of patients can be conducted to gain insights about their expectations regarding their issues. Few questions like,

- What do staff, executives of healthcare management perceive about the key attributes of quality services?
- What issues and tasks are involved in providing high quality services?
- What do patients perceive to be the key attributes of quality services?
- Analysis of the answers received from executive, staff of healthcare organization and patient, studying whether there is any disparity between the perceptions of patient, staff of healthcare organizations.
- Can the perception of patient and executive be combined in general way that elaborates the need of patient for quality services.

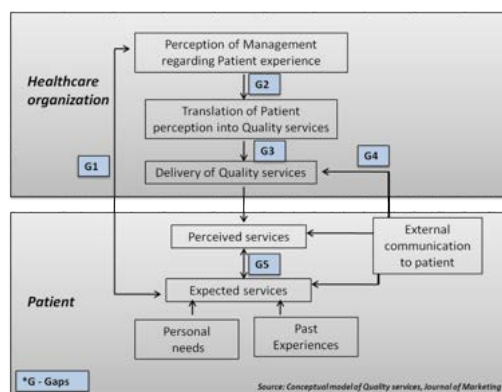


Figure. 1: Gaps in process of implicating the Quality services

Few commonly observed gaps in the perception of staff and patient needs are the major issues in attempting to deliver a quality service which probably might perceive as being of high quality. The process of implicating the quality services with gaps is elaborated above.

Gap.1 - Perception of management regarding patient expectations & eExpected services: Gap between management perception of patient expectation and actual patient expectation will impact the patient evaluation of quality services. This is the major backlog that is faced by number of healthcare organizations. For which they need to carry out qualitative study that will support their decision to improve the quality of services.

Shared decision-making leads to exploring and comparing the benefits, harms, risks measuring by means of patient's feedback. Shared decision making helps in decision making with mutual understanding in case of more than one treatment is applicable, no treatment has clear advantage over other. Various IT technologies go hand in hand with shared decision making, like interactive decision aids, patient portals, and health records. Six steps of shared decision making are shown in Figure 2.

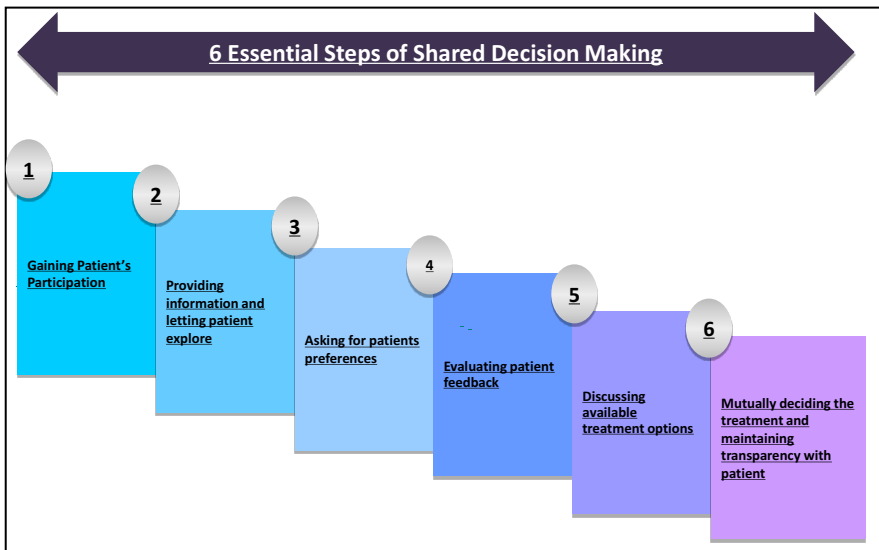


Figure.2: 6 Essential steps of Shared Decision Making

Gap.2- Perception of management regarding patient expectations & Translation of patient perception to Quality services: The translation of the patient perception into services can be hampered because of lack of trained service personnel and fluctuations in demand. For this the trend of patient needs should be observed and accordingly work plan has to be designed.

Gap.3- Translation of patient perception to Quality services & Delivery of Quality services: Though there are specifications and guidelines to deliver the services smoothly, the employee's performance cannot always be standardized. Sometimes the performance can be excellent, and sometimes it just matches the job needs. Well, one can't standardize performance but should complete all assigned duties. Taking into account those duties management should plan to implement the quality services.

Gap.4- Quality service delivery & External communication with patient: Communication to patients about the services is critical point. Patients are not aware of the available services and sometimes they hesitate to resolve their issue. Also, staff should be aware while promising the patient to deliver the services as per needs, as this leads to expectations but when not fulfilled lowers the perception of quality.

Gap.5- Perceived services & Expected services: The judgement of high - or low - grade services depends on how patient perceives it in the context of their expectation and needs.

Pros and cons of various ways to perceive feedback from patients: Measures and approaches provide an opportunity to improve the services of care, expand strategic initiatives to meet patient satisfaction level and efficiently manage the healthcare organization. There are many variables to measure and apply the approaches that will increase the patient satisfaction level, thus it's important to start with questioning self, What, How and When to measure.

The preliminary point to start is to set standards and indicators to measure the variables. The variables should cover the domains and dimensions of the factors that lead to the study of patient experience. A key component of a successful strategy to understand and improve the patients experience is to understand the factors that matters to the patient. Eg. Nowadays patient centralized services are trending but tools to measure patient experience for quality improvement goals are lacking in organizations. Nothing can be provided at cost of quality. Thus, quality of the service provided is one of the utmost important variables to be measured. To measure patient's experience the data can be collected using various formats that collect descriptive or grading feedback. Some of the ways that are commonly used to measure experience are enlisted in figure based on how generalized and descriptive it is.

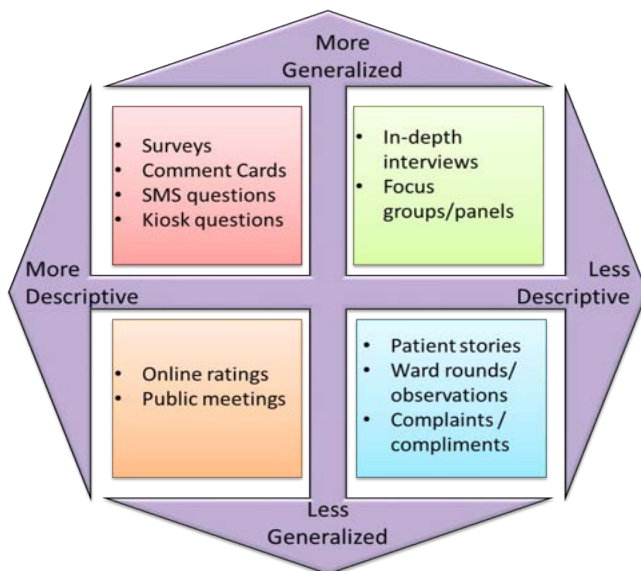


Figure.3: Various approaches to perceive feedback from patients and staff of Healthcare organizations

Following are the list of approach with advantages and limitations:

| Approach | Advantages | Limitations |
|----------------------------|--|---|
| In-depth Interviews | Provides In-depth information Can probe to get reasons Easier to handle sensitive topics | Provides intensive data May have difficulty interviewing same samples overtime Generalizability issues with small samples |
| Focus groups & Panels | In-depth information Can reconvene same group over time Group dynamic can spark ideas | Generalizability issues Resource intensive High rates of sample drop out over time |
| Narrative stories | In-depth information Focuses on what is most important to patients and carers | Generalizability issues Difficult to draw out key themes Difficult to track the changes in sample of people over time. |
| Complaints and compliments | Indicates areas in need of improvement Identify things that people feel particularly passionate about | Biased towards the most serious aspects of care May focus upon individualized issues |
| Photovoice | Gains unprompted feedback & about issues that matter most to participants | Participants need to be trained in the approach and in writing captions Requires camera |
| Surveys | Descriptive feedback Can use multiple administration methods (online, comment cards, telephone, text messages, in-person) | May collect only a surface level picture, rather than understanding why people feel a certain way Subject to self-selection and literacy bias Closed-ended questions may be more likely to gain positive feedback |
| Online rating tools | Increasingly promoted and available to large sample of patients | Only those who use websites provide feedback Surface level- information Only cover selected components of patient experience |

Patient preferences: Patient perception is an exclusive source of information about the convenience or effectiveness of care. The patient's view directly states the compliance level of treatment and the steadiness of the patient–physician relationship, and hence cares outcomes. The patient perceptions help to evaluate the quality, in contrast to other approaches that mainly focuses on the measurement of inadequate processes or undesired outcomes. In several reviews it was found that those organizations that provide “personal” care are associated with higher levels of satisfaction. Achieving and producing health satisfaction goals for individual member by particular organization are ultimate validator of quality of care.

Evaluation of feedback: The credibility of the research study is based on the concept of validity, reliability and its analytical process. The feedbacks received normally follow a pattern representing the thematic framework. The feedback received can be coded for variety of comments and broad themes should be identified within a framework. The second level of analysis is to identify patterns and relationships in the data, which indicates similarity and points towards certain factors. A tentative conceptual model of the experiences of participants can be designed further that might help clarify and support the findings of the quantitative survey.

Patient Touch points: As we have seen earlier the ways to capture the consumer feedback and the gaps which we need to bridge, the patient touch points or interactions with health care facility and professionals is a heart of patient healthcare. The patient touch points determine patients experience and satisfaction which is not only the clinical task but also determines the patient outcome. A better healthcare will be taken when all those touch points will be mapped. Various touch points are starting from scheduling, responding to emergency services, support during testing processes, helping during their

transport, treatment procedures, and at the end coordination while billing. This will shift the focus from operations and technology to the customer and explains the emotions behind each one of the actions that healthcare organizations take.

Way forward: The quality of healthcare depends on relationship between patients and health practitioners. Recent survey shows that a care-management approach which includes patient involvement is more effective than a standard one side approach of healthcare professional. This is particularly marked in the management of chronic diseases like diabetes. However, “patient involvement” is usually overlapped with other terms such as patient participation, patient empowerment, patient centeredness, and patient engagement. The concept of patient involvement aids to the benefits to have a central position in overall healthcare process. The benefits are anticipated to have upgraded outcome for the patient as a result of the improved interaction between the healthcare provider and the patient.

“The quality that is perceived by patient is function of magnitude and direction of gap between expected and perceived services”.

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Beyond the Laboratory

Proteins — A Clinician's Perspective



Adequate protein intake is central to health as well as is challenging. The reasons for this challenge vary from availability of proteins, information & mis-information about them and their cost. This article is an attempt to straighten-out some basic information about protein that will form the basis of protein-practice, before we get on to the complexities of protein
- Dr. Jeethan Bendoor.



A recently published paper in the Indian Medical Gazette (1) of a consumer survey of

- males and females (non-pregnant and non-lactating), aged between 30 and 55 years;
- participants who belonged to socio-economic classes A and B;
- participants from seven major cities in India (Ahmedabad, Delhi, Chennai, Kolkata, Lucknow, Mumbai and Vijaywada);
- participants, regardless of diet preferences;
- participants who were randomly selected;

reported that 9 of 10 Indians consume inadequate protein.

The basic protein required by an adult Indian, according to the Indian Council of Medical Research's (ICMR's) recommended dietary allowance (RDA) is 1 gram of protein/kg body weight/day (P/kgBW/D). Furthermore, the paper went on to report that 91% of vegetarians were protein deficit, compared to 85% in non-vegetarians (1).

In my clinical practice, I assess food habits and lifestyles of most, if not all patients. Adequate protein intake is central to health as well as is challenging. The reasons for this challenge vary from availability of proteins, information & mis-information about them and their cost. Let me, in this article attempt to straighten-out some basic information about protein that will form the basis of protein-practice, before we get on to the complexities of protein, perhaps in the next few articles.

What are, and why protein?

Protein is one of the three macronutrients in food — the others being fat and carbohydrate. Proteins are made up of combinations of amino acids — their basic building blocks, which are classified as essential (not synthesised by the body, therefore, requires consumption), and non-essential amino acids. Special amino acids may be required on-demand (Table 1) (2).

Table 1 : Classification of Amino acids

| Essential | Non essential | Special |
|---------------|---------------|------------|
| Lysine | Cysteine | GABA |
| Methionine | Tyrosine | DOPA |
| Valine | Serine | Citrulline |
| Tryptophan | Alanine | Ornithine |
| Isoleucine | Asparagines | Taurine |
| Histidine | Aspartic acid | |
| Phenylalanine | Glutamic acid | |
| Threonine | Glycine | |
| Leucine | Hydroxylysine | |
| Arginine | Proline | |

GABA = Gamma aminobutyric acid; DOPA = dihydroxyphenylalanine. Adapted from ref 2.

Amino acids, either as singles, peptides or as proteins are ultimately responsible for various functions and structures in our bodies. To name a few:

- Signalling molecules
- Digestive enzymes
- Haemoglobin
- Hormones
- Antibodies
- Bone
- Muscle

The various combinations of amino acids differentiate peptides or proteins from one another. Therefore, ingesting food that provides amino acids which we require is crucial! For example, having adequate amino acids glycine and hydroxyproline is central in collagen rebuild/repair.

Who should have protein?

Protein is required by everybody! That means all — a new-born to an ageing adult. There is no second-guessing or debate on this issue. Protein deficiency can cause health problems (Table 2) (3).

Table 2: Symptoms of Protein deficiency

| |
|--|
| <p>Decrease in protein synthesis and increase in proteolysis in skeletal muscle and whole body</p> <p>Low serum albumin; reduced concentrations of amino acids in plasma</p> <p>Endocrine imbalance; reduced levels of insulin, growth hormone, IGF-I, and thyroid hormones in plasma</p> <p>Impaired anti-oxidative reactions; increased oxidative stress; advanced aging</p> <p>Growth stunting of the young; impaired development (including cognitive development) of the young</p> <p>Intrauterine growth restriction in maternal protein deficiency and its life-long negative consequences in postnatal growth, metabolism and health (e.g., increasing risk of obesity, infection, and cardiovascular abnormalities)</p> <p>Impairments in absorption, transport and storage of nutrients (including vitamins, minerals, amino acids, glucose, and fatty acids)</p> <p>Anemia, reduced transport of oxygen, reduced whole-body energy expenditure</p> <p>Skeletal muscle wasting; physical fatigue; weakness; headache; fainting</p> <p>Impaired immune response; frequent infections; increased rates of morbidity and mortality from infectious diseases</p> <p>Cardiac failure; cardiovascular abnormalities; hypertension</p> <p>Tissue fluid retention; peripheral and periorbital edema (particularly swelling in the abdomen, leg, hands, and feet)</p> <p>Reduced synthesis of neurotransmitters; emotional disorders (e.g, moodiness, severe depression, and anxiety); irritability; insomnia</p> <p>Loss of libido; reduced fertility; embryonic loss</p> <p>Loss of calcium and bones; dental abnormalities</p> <p>Hair breakage and loss; reduced production of pigments; appearance of grey hair color</p> <p>Pale skin; dry or flaking skin; skin atrophy</p> <p>Adapted from ref 3.</p> |
|--|

How much protein does one need?

As stated above, the ICMR states that an adult requires 1 gram of P/kgBW/D (1).

This means that, if a person weighs 70 Kgs, he/she requires 70 grams of protein per day.

It is extremely important to understand that, these 70 grams of proteins per day is a "basic requirement", a "minimal requirement for physiological balance", if you wish (4)!

I emphasize again — this means that, these 70 grams of proteins need to be ingested regardless of exercise or extra activity — this is a minimal amount that is required to keep one's body functioning smoothly. 1 gram of P/kgBW/D is not the maximum amount of protein that one needs.

So, what is the challenge? We know how much protein we need...

Here is a preliminary list of issues that we need to understand about amino acids and protein intake.

1. All proteins are not the same

Proteins differ in amino-acid content. Picking the right proteins with biologically relevant amino acids is crucial. Animal sources (e.g., meat, eggs) provide complete proteins (i.e., all essential amino acids), whereas vegetable sources may lack one or more of the essential amino acids (4).

Several lines of evidence show that animal-source protein has a greater nutritional value than plant-source protein to sustain skeletal-muscle mass (4).

2. Usage of the term "higher" and definition of "high protein"

Many a times we use "higher", without stating "higher than...". It is important to do so, eg., higher than RDA, followed by a value.

It is also imperative to define what "high" means? This terminology is used commonly, which creates confusion. In my opinion, high protein is 1.5 grams of P/kgBW/D and above (5).

3. Protein requirement vary depending on circumstances

i) Children will need 1.4 (1 year of age) to 1.05 (18 years of age) grams of P/kgBW/D (6).

ii) Senior citizens (of above 70 years of age) will need 1.0 to 1.3 grams of P/kgBW/D to optimize physical function (7, 8), with an emphasis on their intake of the amino acid leucine for stimulating skeletal muscle anabolism (8).

iii) During illness and convalescence there is a need to increase protein intake (9) by at least 15% in acute infections to up to 30% in chronic infections (Table 3) (10).

i) Higher than RDA-recommended protein intake in athletes, body-sculptors and persons who want to bulk-up muscle mass. Endurance athletes will need 1.2–1.4 grams of P/kgBW/D; strength athletes 1.2–3.0 grams of P/kgBW/D (11).

ii) Higher than RDA-recommended protein intake during pregnancy and lactation. The recommendations by the National Institute of Nutrition, Hyderabad, India (NIN), keeping a reference woman at 55 kgs, recommends that during pregnancy a woman will need 1.41 grams of P/kgBW/D (78 grams/day); during lactation 1.34 grams of P/kgBW/D (74 grams/day) during the first 6 months, and 1.23 grams of P/kgBW/D during 6–12 months of lactation (12).

Table 3: Protein allowances in acute and chronic bacterial infections

| Condition | Allowance (as a percentage of protein requirements) |
|--|--|
| Untreated tuberculosis | 25 |
| Partly treated melioidosis | 15 |
| Mixed intestinal parasites | 10 |
| Acute bacterial infection (including convalescence) | 20 |
| Acute diarrhoea (including convalescence) | 30 |
| Mild febrile illness, as induced by vaccination | 15 |
| Sepsis | 30 |

Adapted from ref 10.

4) Quantity of protein.

As a reference-point, according to data published by the NIN (13):

- 100 grams of red rajmah has 20 grams of protein + 49 grams of carbohydrates.
- 100 grams of white cowpea has 21 grams of proteins + 54 grams of carbohydrate.
- 100 grams of paneer contains 18 grams of protein + 12.5 grams of carbohydrates.
- 100 grams of whole egg contains 13 grams of proteins + negligible carbohydrates.
- 100 grams of chicken leg contains 19 grams of proteins + negligible carbohydrates

Understanding how much protein one's food contains and quantitating intake is absolutely crucial!

If protein via natural food is inadequate to suit one's protein requirements, one will have to supplement with proteins that are available as protein powders, protein

bars and/or intravenous amino acids. Having good-quality supplements is certainly not unhealthy.

When does one need to consume protein?

Food that contains required protein is recommended for individuals in the basic requirement group — so, protein sources consisting of 20–40 grams per meal to stimulate muscle protein synthesis and muscle protein balance (11).

If one is exercising (resistance training and high-intensity exercises is what I generally recommend; walking is not exercise in my opinion, neither is jogging. I'll leave this discussion for another publication), I recommend protein intake at least an hour after the exercise. However, feeding before and/or after workout may help as an effective strategy to support positive adaptations to exercise training.

The efficacy of post-workout feedings appears to be impacted by size and protein content of the pre-exercise feeding. There is also a suggestion of consuming casein protein (~30–40 g) before sleep — this can acutely increase muscle protein synthesis and metabolic rate throughout the night without negatively influencing lipolysis (11).

Also, one has to remember that an increase in skeletal-muscle protein synthesis occurs within 1–2 h after consumption of dietary protein, and is sustained for 3 hours, thereafter (3).

Is “high” protein consumption harmful?

The kidney has been the main organ of concern with high-protein intake. One thing has to be clear — the RDA of 1 gram of P/kgBW/D is not a concern for individuals with a normally functioning kidney.

The Canadian Diabetes Association (CDA) recommends 1.0–1.5 grams of P/kgBW/D for the general population with type 2 diabetes; the CDA and American Diabetes Association both recommend a reduction of protein to 0.8 grams of P/kgBW/D for those with chronic kidney disease (14).

I defined “high” protein as 1.5 grams P/kgBW/D and above. This high-protein recommendation is for athletes, body-sculptors and persons who want to bulk-up their muscle mass. There is no published evidence that a diet containing up to 2.8 grams of P/kgBW/D produces adverse effects on kidney metabolism in athletes.

As well, no known association of protein intake with progressive renal insufficiency has been determined [15]. In addition, a series of controlled investigations spanning up to one year in duration, utilizing protein intakes of up to 2.5–3.3 grams of P/kgBW/D in healthy resistance-trained individuals consistently indicate that increased intakes of protein exert no harmful effect on blood lipids or markers of kidney and liver function (16).

Is only food sufficient to source proteins?

Yes, natural food, as a first choice, is sufficient to provide required proteins. Saying that, in my practice, most patients are recommended supplements because of inadequate protein intake via their everyday food.

Take-home messages

- Understand your food, read labels and quantitate protein for everyday intake.
- 1 gram of P/kgBW/D is not harmful. It is essential!
- High protein intake of 1.5 grams of P/kgBW/D to 3.0 grams of P/kgBW/D is required in athletes, body-sculptors and persons who want to bulk-up their muscle mass.
- It's certainly practical to monitor lipids, and liver and kidney functions.

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Interlink's Happenings...



Project 1. Assistance in Target Setting & Selling

Interlink team has worked for a pharmaceutical client in the process of target setting and selling for the FY 20-21. This intervention has assisted our client to set an achievable target and helped to create a roadmap towards accomplishing desired growth.

Project 2. Interim Management of Business Operations

Interlink team consisting of experts is currently working with one of the companies based at Delhi to strengthen all functions of organization, Specifically S&M, HR, Logistics.

Project 3. New Nutraceutical Division Launch

Interlink is currently working with Mumbai based company launch a new Nutraceutical division in India. The market study along with primary and secondary research has been conducted at PAN India level. On the basis of the analytics done from these researches; currently Interlink is working on the launch strategy.

Project 4. Developing KOLs for major Calcium brand

Interlink team of experts has worked with well-known Pharmaceutical company to develop their major KOLs for Calcium brand.

Project 5. Strengthening Educational Institutes

Interlink team of experts is currently working with two autonomous institutes in Mumbai, Maharashtra to provide a strategic advice for strengthening autonomy and setting up entrepreneur incubation centres for rising entrepreneurs.



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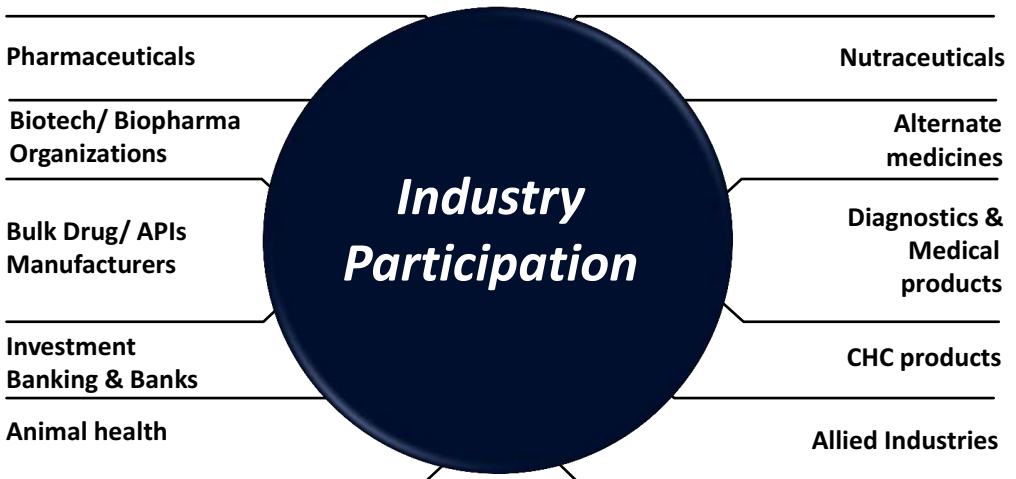
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