PUNE INTERNATIONAL CENTRE

India Exports: The next $100-Billion – Medical Services

July 2024

By
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Strategy Consultant

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Acknowledgments

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[1] Recipient of AMP Award for Excellence in Molecular Diagnostics, https://www.amp.org/AMP/assets/File/pressreleases/2024/AMP_24_Awards_FINAL.pdf

[2] Recipient of TITAN Women in Business Awards for Female Executive of the Year – Customer Services, https://thewomenbusinessawards.com/winner-info.php?id=125

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1. Introduction

In making such a bold projection, most well-meaning friends would advocate greater modesty. However, arising from his years of research in computer software and knowledge of the industry in its home country of the USA, this author knew where the shoe pinched the users of computers, US corporations. His success as an Intrapreneur at Tata Burroughs Ltd—envisioning and building from scratch the Software Services industry beginning in the mid-1970s, and seeing the sole plant blossom over 50 years to a $150-billion forest—gives him the courage to be equally bold in this new endeavour.

The government and a few company directors who thought of computers were bent more on building a hardware manufacturing industry rather than the software services industry that this maverick envisaged. Government economists, who were mostly of leftist Nehruvian bent, mocked his efforts. The Delhi intelligentsia, again very leftist, looked down their noses thinking of the slavery the British imposed on India and saying that it was a form of "body shopping." Bureaucrats tried their best to handicap the software services export effort. Within seven years, in 1985, as the first and largest of its kind, Tata Burroughs Ltd had a successful IPO—the first software services company to list on a stock exchange, with a huge oversubscription. The effort succeeded despite all this negativity and today the industry is the pride of India.

Medical Services too can be an equally large export earner. In an era where healthcare has become as crucial as economic stability for developed nations, India is poised to transform its medical sector into a global powerhouse, akin to its IT industry boom.

India's strategic blend of a rich resource pool, availability and development of advanced medical technology, the liveability of its coastal areas, its prominence in generic pharmaceuticals, its focus on improved transport infrastructure, and other allied forces is poised to manifest into a booming Health Services industry.

2. The Market Opportunity Stems from a Growing Backlog and an Affordability Crisis of Healthcare in G7 Countries

The opportunity that underlay the start of India's software services export industry in the latter half of the 1970s arose from one key factor, viz., the graph showing the **number of years expected to clear the Application Backlog** in the USA, the largest user of computers. It was estimated that, given the resources then available in the USA, it would require over 10 years to clear the backlog and that the backlog would only continue to grow each year.

The key driver of Medical Services Export is a shortage of qualified resources in G7 countries, leading to a backlog of medical procedures, including doctor's annual examinations (with appointments available as much as six months out), need for imaging diagnostics, surgery (as much as one year out), and other similar needs. This shortage of healthcare resources is compounded by a growing backlog problem in elder care and a broad population requiring medical treatment. Recently, a similar backlog of pharmacist-delayed fulfilment of doctor's orders (called Scrips in the USA) driven by supply chain problems and inadequate numbers of pharmacists has caused much consternation. Many establishments are short of qualified staff and have difficulty recruiting them. One CNN news report on this problem that appeared as recently as 25 July 2024 says:

> *Concern is growing among some US lawmakers about the nation's ongoing shortage of healthcare workers. In areas where a health workforce shortage has been identified, the US*

> *needs more than 17,000 additional primary care practitioners, 12,000 dental health practitioners and 8,200 mental health practitioners, according to the latest data this week from the Health Resources & Services Administration.*
>
> *"We have nowhere near the kind of workforce, healthcare workforce, that we need," Vermont Senator Bernie Sanders told CNN on Friday.*

A recent study of wait times for diagnostic tests provided evidence of how acute the problem is. In 2004, physician search firm Merritt Hawkins first issued their Survey of Physician Appointment Wait Times. That year, the national average **wait time to see a new physician was 21 days**, an unacceptable amount of time to wait to access care. But that number has only gotten worse. **In their 2022 survey**, the wait time for a new patient appointment **increased to an average of 26 days**.

The story is even worse when you look under the hood at certain specialties and markets. The **average wait time for an OB-GYN (Obstetrics and Gynaecology) appointment is 31.4 day**s, a 19% increase from 2017. Wait times grew across dermatology (+7%), cardiology (+26%), and orthopaedic surgery (+42%) between 2017 and 2022. And while residents of New York can consider themselves "fortunate" to have an average wait time of just over two weeks to access care (17.4 days), people in Portland, Boston and Minneapolis are facing the **longest average wait times at 45.6 days, 33.8 days, and 30.8 days,** respectively.

Given the ever-rising wait times to access ambulatory care, it is no surprise that ER (Emergency Room) wait times are also on the rise. But receiving treatment at the ER can be up to 12 times more expensive than at a doctor's office, contributing $32 billion in wasted spending on hospital care that could have been delivered in a lower-cost setting[3].

Another key factor is the ageing of the populations in the G7 countries. This gets reflected in the growing population of senior citizens needing various degrees of care on the one hand and, on the other, the growing number of procedures for age-related disorders from cataract surgery to heart bypasses and cancer related surgeries, by way of illustration. The graph below shows the growth of the older population in the US over a 100-year period.

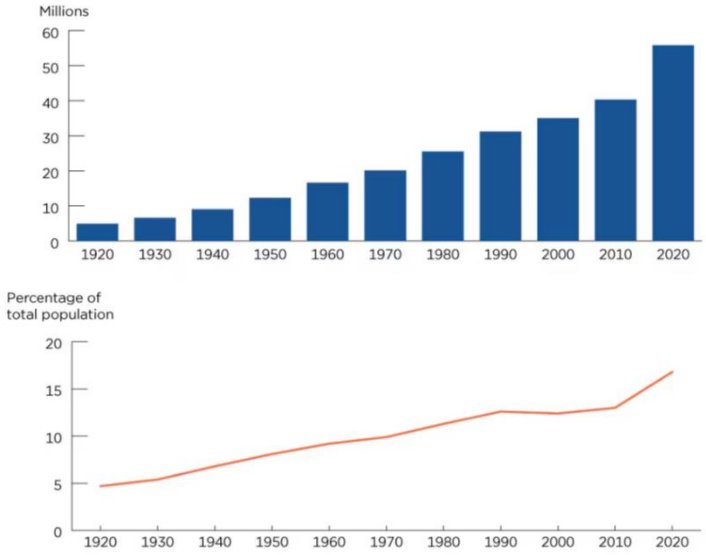
[3] Why America Has a Long-Term Labor Crisis, in Six Charts, Wall Street Journal, https://www.wsj.com/economy/jobs/labor-supply-economy-jobs-charts-3285a5b7 and https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10666297/

census.gov

The U.S. population age 65 and over grew nearly five times faster than the total population over the 100 years from 1920 to 2020, according to the 2020 Census.

The older population reached 55.8 million or 16.8% of the population of the United States in 2020.

Figure 1.
Population 65 Years and Over by Size and Percentage of Total Population: 1920 to 2020



Note: For information on data collection, confidentiality protection, nonsampling error, and definitions, refer to <https://www2.census.gov/programs-surveys/decennial/2020/technical-documentation/complete-tech-docs/demographic-and-housing-characteristics-file-and-demographic-profile/2020census-demographic-and-housing-characteristics-file-and-demographic-profile-techdoc.pdf>.
Source: U.S. Census Bureau, Decennial Census of Population, 1900 to 2000; 2010 Census Summary File 1, and 2020 Census Demographic and Housing Characteristics File (DHC).

The third problem is that of affordability of medical care. This is true for senior citizens and all signs point to the same problem, possibly even graver, for currently active earners, suggesting a persistence and prolongation of the problem of unaffordable healthcare.

Older Americans, including baby boomers who are now in their 60s, with retirement accounts powered by a booming stock market, remain a major force in the **overall** economy, Federal Reserve data show. But that age group also includes older adults with little, if any, retirement funds socked away, or only Social Security to lean on, who are facing golden years laden with risk.

As Jovelle Tamayo describes in the Wall Street Journal, "for millions of close-to-retirement baby boomers, who could live at least two more decades, a lost job or expensive medical problem could upend their stability while ramping up pressure on younger generations"[4]. About a third of younger baby-boomer households lacked retirement benefits beyond Social Security in 2022, the most recent year available, according to a closely watched Federal Reserve tool called the Survey of Consumer Finances.

[4] *America's 60-Year-Olds Are Staring at Financial Peril, Wall Street Journal, 23 July 2024, https://www.wsj.com/personal-finance/americas-60-year-olds-are-staring-at-financial-peril-62599a76*

Worse still, in the past decade there has been considerable political pressure to minimise Social Security benefits, delay their start, or even eliminate them.

A bruising recession (2008, and following the COVID-19 pandemic) and **the disappearance of pensions** as a socially acceptable expectation of employment **have left many young baby boomers financially exposed.** Many others have only meagre savings or are worried that soaring health costs will quickly drain their reserves. More of these young boomers "are going to enter into retirement without the resources they need," said David John, who studies retirement savings issues at the American Association of Retired Persons (AARP) Public Policy Institute. For many, making ends meet will likely mean having to work well into old age, if they are able. But **they may also have to rely on younger family members as caregivers and for financial support**. Many seniors in poverty or driven to it could also increase reliance on Medicaid, the health programme for the poor, which foots bills for long-term care including nursing homes.

Aggravating this already serious socio-economic problem is the growing incidence of previously uncommon diseases that lead to shorter lifespans, e.g., cancers, cardiac and respiratory problems, dementia, and others. Many of these require prolonged treatment and often surgical intervention. One study[5] of the incidence of major surgery in older persons in the USA found this:

> *In this prospective longitudinal study, data from 5,571 community-living, fee-for-service Medicare beneficiaries were used to calculate nationally representative estimates for the incidence and cumulative risk of major surgery over a five-year period.*
>
> ***Nearly nine major surgeries were performed annually for every 100 older persons, and more than one in seven Medicare beneficiaries underwent a major surgery over five years,*** *representing nearly 5 million unique older persons.*

To summarise, then, the combination of the four forces—ageing populations, increasing incidence of diseases typical of more advanced ages, shortage of medically skilled personnel, and decreasing affordability of continuing and episodic treatments and surgery—have for the G7 countries created a serious problem that is crying for a solution.

3. The Resources that India can Bring to Bear

India has the potential to contribute the services of a young and growing population of educated persons who are both currently trained and can be trained to provide the medical resources to address the needs of the G7 countries facing this socio-economic problem.

Moreover, the entrepreneurial class is strong and growing, thereby poised to contribute the resources and focus on providing these solutions, much as it did to the software application backlog and applications growth problem hitherto.

Let us start with skilled human resources.

The **All India Institutes of Medical Sciences** (**AIIMS**) is a group of autonomous government public medical universities of higher education under the jurisdiction of the Ministry of Health and Family Welfare, Government of India. These institutes have been declared by an Act of Parliament as Institutes of National Importance. AIIMS New Delhi, the forerunner institute, was established in 1956. Since then, 24 more institutes were announced. As of January 2023, 20 institutes are operating and four more are

[5] https://www.medrxiv.org/content/10.1101/2020.11.26.20239228v1.full

expected to become operational until 2025. Proposals were made for six more AIIMS under the leadership of Narendra Modi, which will bring the total to 30 nationwide. It is considered as the pioneer health institution of Asia.

Each AIIMS houses educational facilities and actual field practice.

Illustratively, at AIIMS Delhi, as on 31 March 2021, per their website, 523 Physician-students including 73 interns were on the rolls. Similarly, 401 nursing students and a total of 177 Medical Technician students were on the rolls. Additionally, some 1,985 persons were undergoing education and training.[6]

Eventually, each of the 24 AIIMS centres should have comparable numbers of output of trained medical personnel. Moreover, we have the largest number of medical colleges in the world (595 as of January 2022) with an intake of 89,395 students in the last year.[5] If 80% of these students complete their MBBS, and even if only 75% of them remain in India to practice, we will add at least 53,000 doctors per year.[7]

This effort will be enhanced by recent directives to ensure that every district hospital turns into a medical or nursing/technician training centre.[8] This will further increase the pool of trained human resources.

Moreover, Indian medical colleges already know how to get physicians certified to the standards of developed countries, such as the United States Medical Licensing Examination (USMLE) and the United Kingdom Medical Licensing Assessment (UKMLA).

Illustratively, the Indian educational university Manipal says of one of theirs [9] :

> Medical aspirants who opt for studies globally prefer institutions that accelerate their pace towards accomplishing their medical career dreams. From the outset of their medical education through to successfully completing the programme and advancing in their medical careers, Manipal University College Malaysia, in collaboration with The MedPrep, ensures a seamless transition for medical graduates to an internship pathway in the UK.
>
> The MedPrep is a UK-based medical education organisation with nearly 20 years of experience helping doctors navigate the challenges of UK medical licensing and postgraduate exams.
>
> Manipal University College Malaysia students are trained from Year 4 onwards for international qualifying tests such as the UKMLA, USMLE and AMC (Medical Licensing Assessment exams) by specific experts in the field. These exams empower students to practise in other countries as global doctors.

"At MUCM, our aim is to offer extensive support to ensure a continuous transition from medical students to Global Doctor."

Secondly, India is also a major producer of pharmaceuticals. Pharmaceuticals are an important resource for both routine elder care as well as surgery and other procedures, and Indian pharmaceuticals are globally less expensive too.

Today some crucial generic drugs sell for $2 or less per pill or injection. India is now the No. 1 supplier of solid-form generic drugs to U.S. patients, according to the non-profit U.S. Pharmacopeia. When it comes

[6] https://www.aiims.edu/index.php?option=com_content&view=article&id=14061&Itemid=730&lang=en
[7] Times of India Jan.11, 2022
[8] https://health.economictimes.indiatimes.com/news/policy/existing-district-hospitals-being-converted-into-medical-colleges-will-continue-to-get-aid-from-centre-union-health-secretary/111647321. July 11,2024
[9] http://m.timesofindia.com/articleshow/111774824.cms?frmapp=yes&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

to making drugs, Asian countries usually have a 40% to 60% lower cost structure than Western nations, University of Minnesota economist Stephen Schondelmeyer told Congress earlier this year.[10]

To summarise, India has the resources to provide healthcare and eldercare to the ageing population of the G7 countries.

4. The Institutional and Entrepreneurial Structure Required to Deliver These Services to a Global Audience is Present and Growing Rapidly

India's healthcare landscape has seen rapid advancements in recent years, with projects like the Amrita Hospital[11] in Faridabad inaugurated very recently.[12]

This facility, one of many of the group, spanning over a million square feet, houses state-of-the-art technology and specialised multispecialty centres for diverse medical fields such as gastro sciences and renal sciences.

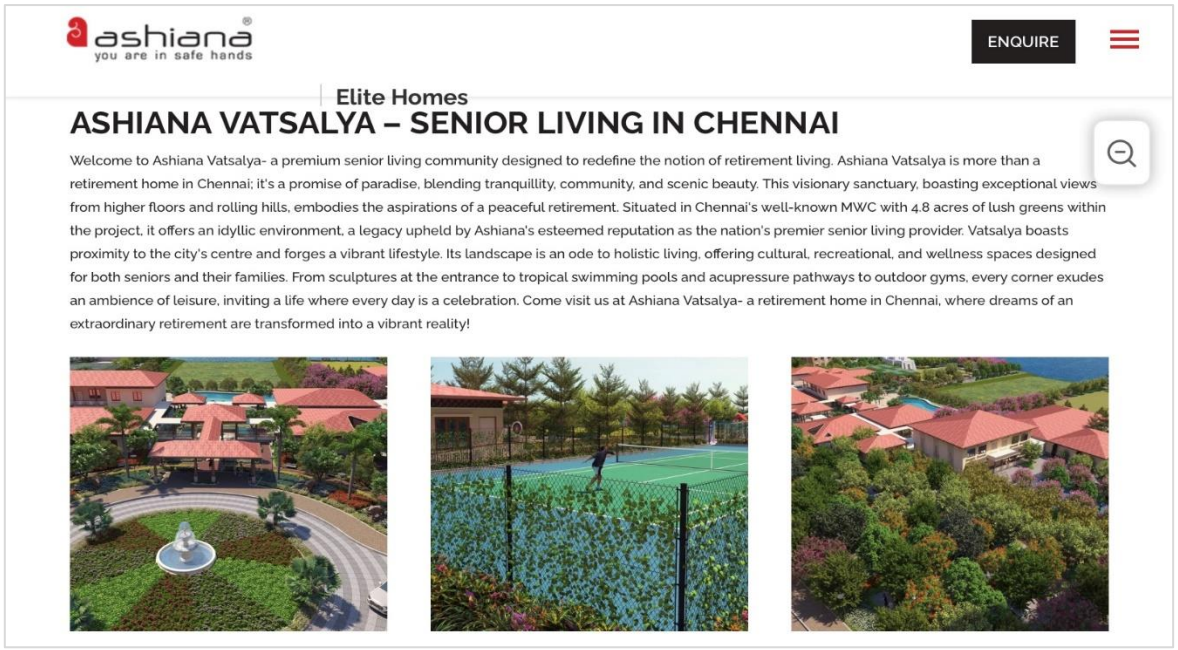
Medanta City[13] in the Delhi metro region, again one of many in the group, provides a similar large facility covering many specialties, having begun with a focus on cardiovascular treatment and surgery.

Moreover, **Indian healthcare providers have pioneered a low-cost, high-volume business model that dramatically reduces per-patient costs while maintaining high quality of care**.

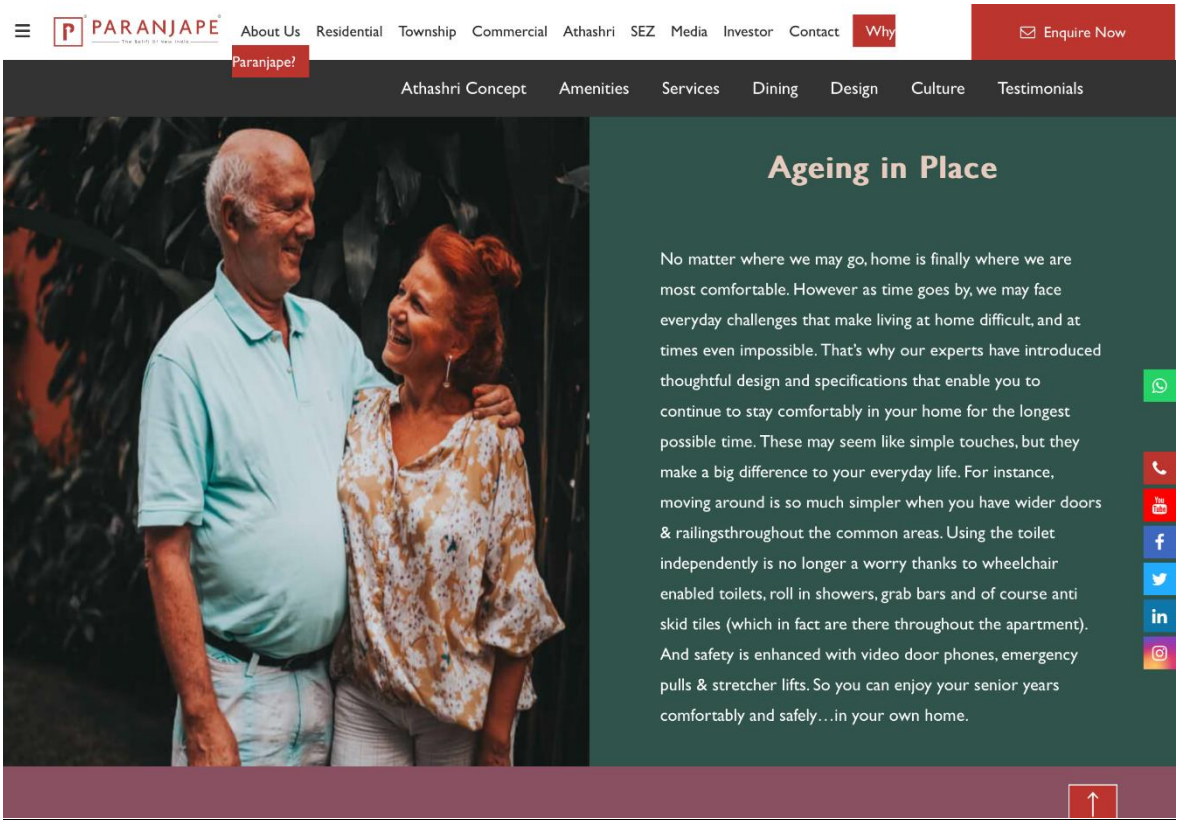
Narayana Healthcare[14], another large multispecialty facility in Bengaluru and in other cities, has revolutionised cardiac surgery care in this model. Narayana Health is now **expanding into managed care (like Kaiser Permanente) by integrating insurance services.**[15]

Retirement homes and eldercare facilities have been set up in many cities for domestic retirees. Here are just two representative institutions, each with multiple centres in multiple cities:

[10] America Is Running Out of Generic Drugmakers. Another One Is on the Brink, Wall Street Journal, https://www.wsj.com/health/pharma/america-is-running-out-of-generic-drugmakers-another-one-is-on-the-brink-dbd8bb17
[11] https://www.amritahospitals.org/kochi
[12] https://www.amritahospitals.org/faridabad/about-us
[13] https://www.medanta.org/hospitals-near-me/gurugram-hospital/speciality/cardiology/cardiac-surgery
[14] https://www.narayanahealth.org
[15] https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/narayana-health-plans-foray-into-insurance/articleshow/101027711.cms?from=mdr



Ashiana[16]



Athashri[17]

[16] Ashiana Senior Living
[17] Athashri by Paranjape. https://www.pscl.in/athashri/

Assisted Living and Palliative Care[18] provides support for elder citizens with medical conditions who need continuous care to varying degrees. Some of the above Senior Living Centres provide in-room care either directly or through an attached sister institution, e.g., Athashri-Aastha.

A standalone institution of this type is Epoch[19], again present in multiple cities:

A later section elaborates geographically on the institutional structures that are available and growing.

5. Principal Market Opportunities to Meet the Medical Needs of G7 Countries

A. ***Retirement Communities and Elder Care***

As explained above, the combination of increasing numbers of older individuals and inadequate caregivers, creates this opportunity. The cost of senior living and especially of assisted living is very high. A quick search provides illustrative costs, as shown below, that should be understood in relation to retirement incomes, which for recipients of Social Security in the USA are about $1862 per month per eligible person according to US News Money in September 2024, with a $3822 maximum payment.

[18] Please see the Appendix for a short article on what this term relates to.
[19] https://www.epocheldercare.com

Choosing where to retire requires considering several factors, including affordability, weather, and community.

Choosing the Best Retirement Location: Things to Consider

- Cost of Living
- Access to Health Services
- Accessible Transportation
- Family and Friends Proximity
- Climate
- Culture.

Currently, retirees from EU countries look at Türkiye and Portugal, while retirees from the USA[20] look at Portugal and Spain for these reasons. One narration of Türkiye's attractiveness describes the logic as follows:

Choosing a country where to retire requires considering several factors, including affordability, weather, and community.

1) Germany has an agreement with Türkiye that Turkish citizens are covered by health insurance in Germany and vice versa.
2) Despite the high (up to 70%) inflation in Türkiye, the cost of living (in general) is, say, one-third of that in Germany, especially for vegetarians.
3) The climate (warmer), the geography/topography (the Mediterranean, the high mountains) are favourable, the population density is much less.
4) Fresh vegetables and fruit (most of the year), good bread, olives, and cheeses are readily available.
5) People are friendly and helpful.
6) Comparatively easy to reach by car (40hrs) or plane (3-4hrs, 120€) from Germany.
7) Historically the two countries have been close to each other.

[20] If you earned Social Security benefits, you can visit or live in most foreign countries and still receive payments (Getting Social Security benefits if you are living outside the U.S., USA.Gov)

8) There are, according to the Internet, over 25,000 Germans living permanently in Türkiye.
9) With Austrians or Dutch, the figures are proportionately comparable.

Romania, Bulgaria, Spain, and Portugal have the advantage that, being EU members, the bureaucratic hurdles for a residential permit etc. are much less.

India should use its coastal territories to set up such retirement homes, as they tend to be similarly attractive. This advantage becomes even greater if Care Home/Palliative Care facilities are also required for those among the retirees who are unable to manage by themselves.

B. Elective Procedures

This category covers a wide range of services. A representative list for seniors is:

- Cardiac Surgery—pacemaker insertion, stenting, bypass…
- Cancer related treatments and surgeries of various kinds
- GI surgeries
- Joint replacements
- Cataract removal and other eye procedures
- Other surgeries or radiation procedures

Currently, patients from some surrounding countries do come to India for such procedures, but the opportunity is significantly larger owing to the long waits in developed countries and the higher costs in this country, by a huge factor.

Hospitals ideally need to set up separate "wings" or institutions for such procedures aimed at foreign visitors, both to ensure that their expectations of factors such as transport facilitation, cuisine, furnishings, environment, etc. are met, and to address legal requirements such as privacy[21] (European regulations like GDPR drive expectations, with similar patient protections offered by HIPAA in the USA), and insurance coverage.

The resources and skillsets for elective procedures can be gauged from a few renowned hospital groups: Narayana Health, Manipal Healthcare, Medanta Health, Bombay Eye Hospital, etc.

C. Onsite Support

During disasters as well as other shortages, teams of medical personnel are in high demand in various parts of the world.

The software services export industry started in this manner, as the credibility and productivity of Indian technologists had to be convincingly established. Despite in-sourcing of much of this activity domestically in India, it remains a vital resource for G7 companies of any size to date and is a significant contributor to India's export earnings.

Instead of relying only on the current ad hoc approach, or charitable organisations like the Red Cross, **commercial** organisations equipped and with business protocols in hand could be the ones providing such services. The anticipated impact of nurse retirements in England is illustrative of such a medium- to long-term commercial opportunity rather than a charitable short-term one.

[21] In the EU, The General Data Protection Regulation (GDPR) recognises data concerning health as a special category of data and provides a definition for health data for data protection purposes.
Similarly, in the USA, HIPAA is a US federal law that governs the privacy and security of Personal Health Information (PHI) in the US.

Here are three recent examples of such overseas staffing needs:

1. The rates of nurses, midwives and nursing associates leaving the professional register also increased substantially. In the year ending March 2022, over 27,100 (some 3.6%) of these staff left the register. Policies to Support Older Nurses at Work, the International Centre on Nurse Migration (ICNM), warns of an upcoming global nursing workforce crisis with the expected retirement of more than 4.7 million nurses by 2030.
2. Nuffield Trust: While headline nursing vacancy figures (over 46,800 in June 2022) do not reflect the contribution of temporary staff who fill many vacant posts, we previously estimated that—given vacancies and absences—some 17,000 posts were unfilled on a given day, although this shortfall will vary over time.
3. AMN Healthcare, a staffing agency based in Dallas and one of America's largest international recruiters, said the number of foreign nurses it placed in US hospitals has increased by 300% since the start of the pandemic. The United Kingdom, facing a similar staffing crisis, created a new visa that fast-tracked applications and reduced fees to make it easier to fill positions with nurses from overseas. Other European nations made similar moves. Last fall, Germany struck a deal with the Philippine government to hire hundreds of nurses and provide specialised language classes, while Finland set a target of hiring 20,000 international nurses by 2030.

6. Challenges and Barriers

To fully realise its potential as a medical export leader, India must address several regulatory challenges which will require diplomatic effort as well as coordination across borders of business councils/chambers. These challenges include:

- Certifications of medical personnel to standards of the client countries
- Certifications of facilities to the standards of client countries
- Insurance cross-acceptances and liability limits with client countries
- Privacy protection as per expectations of G7 country citizens[22]
- Dispute settlement agreements with client countries

Simplifying the processes and ensuring compliance with international standards are essential steps.

The Indian government can play a pivotal role by introducing policies[23] that encourage investment in healthcare infrastructure and research, ensuring that the regulatory environment fosters growth and innovation. Issues such as data security, patient privacy[24], and ethical considerations in medical trials must be addressed meticulously.

Moreover, India must navigate the competitive pressures from other nations aspiring to dominate this sector, ensuring that its offerings are not only cost-effective but also of the highest quality.

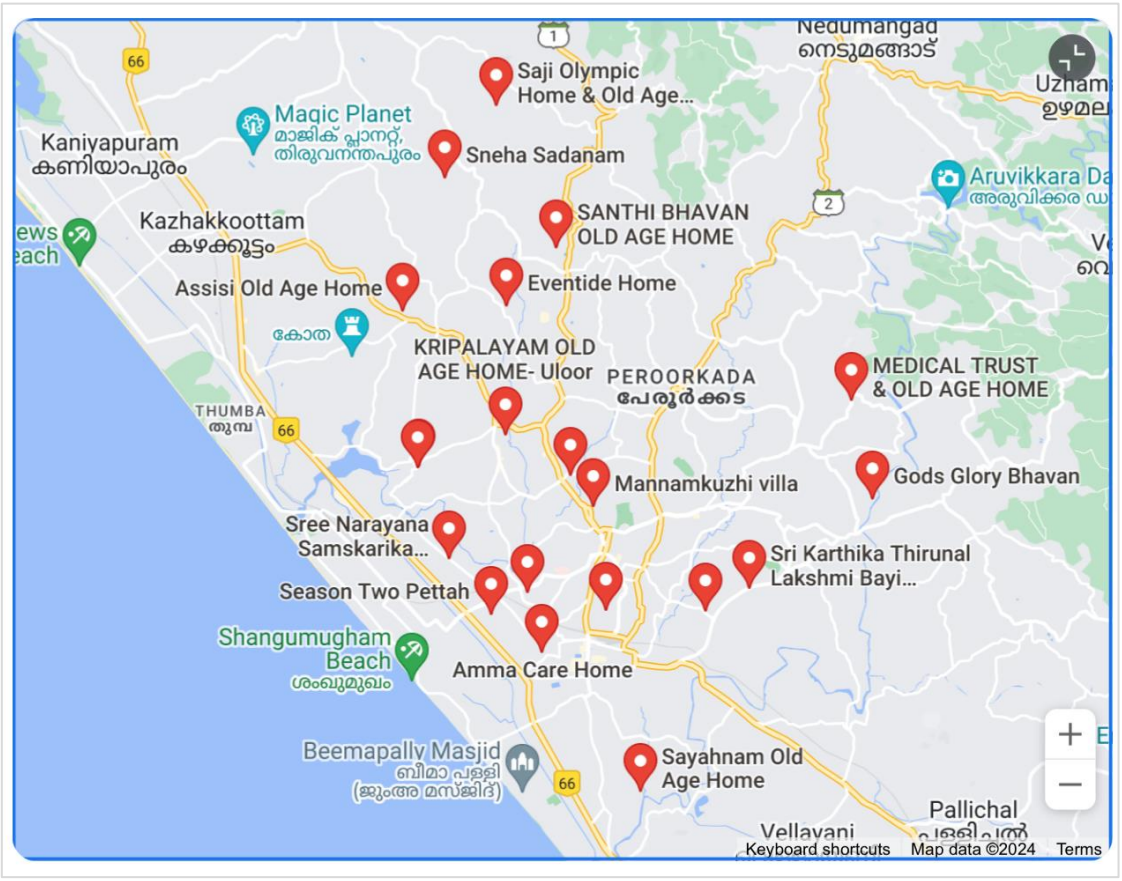
[22] In the EU, the General Data Protection Regulation (GDPR) recognises data concerning health as a special category of data and provides a definition for health data for data protection purposes.
[23] Policy recommendations modelled on the author's recommendations in "Promoting services exports," Business India, March 28, 1994, and "TRUMPs against TRIPs and TRIMs", Business India, November 13, 1989 (both are reproduced in the Appendix).
[24] In USA, HIPAA is a federal law that governs the privacy and security of Personal Health Information (PHI).

7. The Way Forward

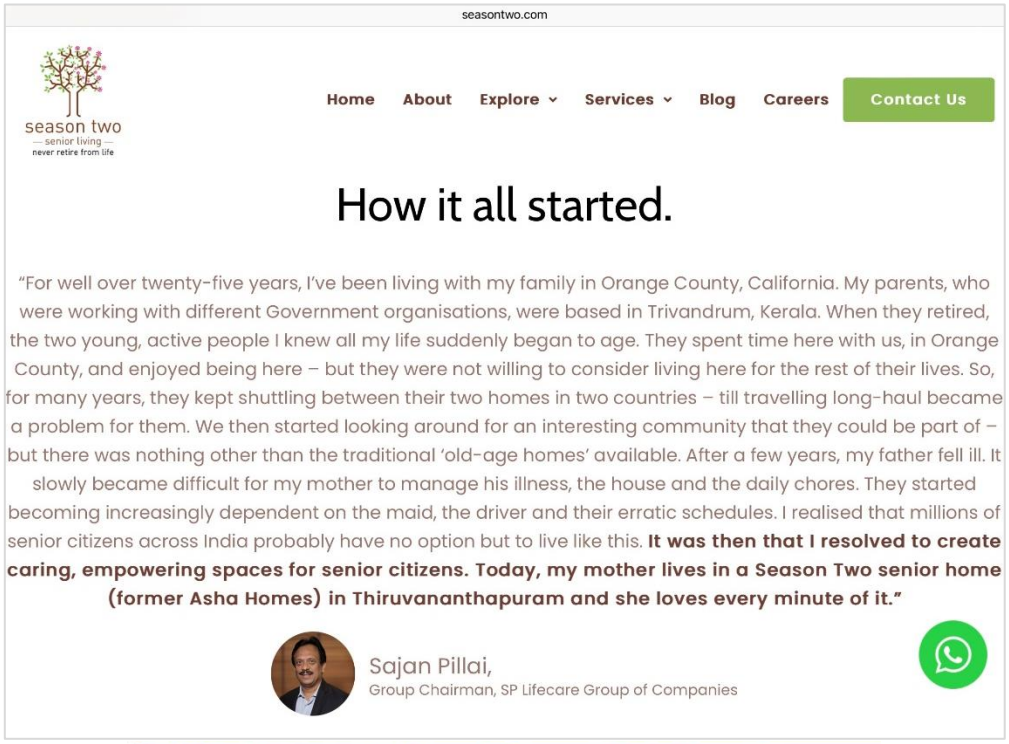
A. Strategic Development of Coastal Retirement Centres with Care Home Facilities and Palliative Care Centres

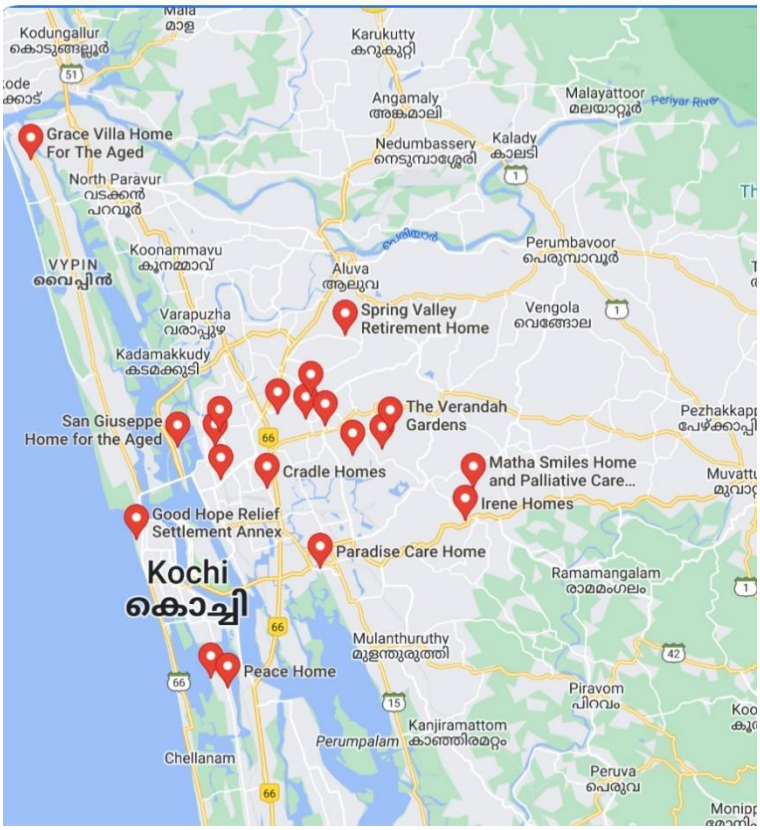
Coastal locations like Goa and Kerala, with their scenic beauty and tranquil environment, are ideal for such setups. Both the Eastern and Western coasts of the Indian peninsula offer similar suitable sites. Kerala has already made a head start. Their current focus, though, is largely the domestic market.

These maps show a cluster of such facilities around the city of Kochi and of Thiruvananthapuram:



The current motivation is strongly tied to the situation overseas as described earlier illustratively, even if in this specific case it is related to NRIs with parents in India.[25]





[25] https://seasontwo.com

The Kerala clusters take advantage of centres of advanced medical care within about an hour's ambulance drive.

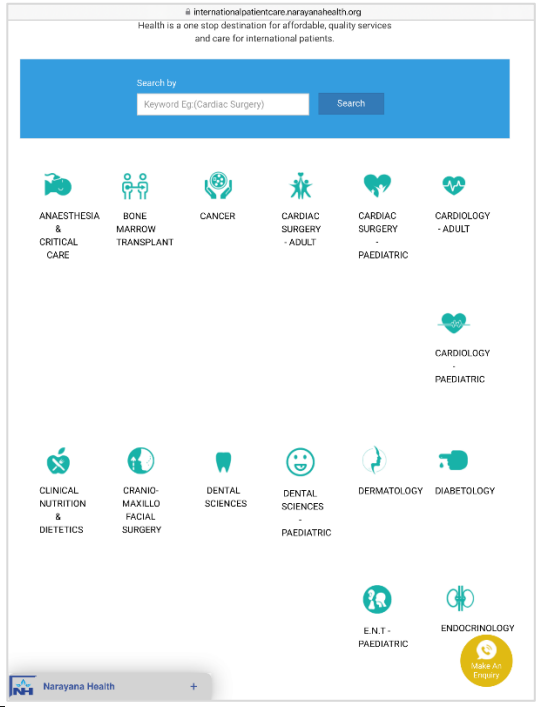
The same kind of clustering around Surat-Daman, Goa, Madurai, Puducherry, Chennai, Krishnapatnam, Vijayawada, Vishakhapatnam, and Puri could be envisaged.

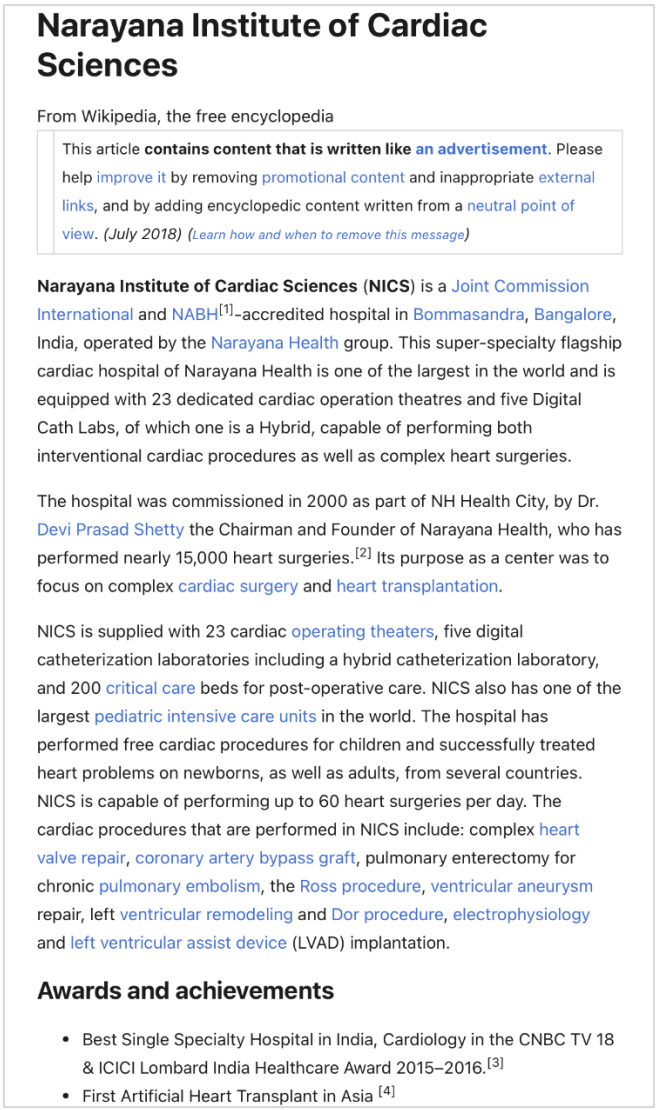
Establishment of AIIMS centres or equivalents would be important drivers in the case of these cities.

B. Strategic Development of Health Cities

To replicate the success of India's IT sector, multiplication of the concept of 'Health Cities' is proposed. These specialised zones, similar to IT parks, would centralise medical education, research, and advanced healthcare services, creating ecosystems that foster innovation and efficiency. Such cities could be strategically located near major urban centres near clusters like those identified above for Retirement and Care Home clusters, utilising existing infrastructure and enhancing accessibility. Government incentives and private investments would be crucial in developing these hubs, which could serve as the launchpads for India's medical services exports.

Medanta City near Delhi, Narayana Health City in Bengaluru, among others, are good prototypes and representative of the kind of healthcare facilities and skills available in such centres.





Narayana Institute of Cardiac Sciences

From Wikipedia, the free encyclopedia

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Narayana Institute of Cardiac Sciences (**NICS**) is a Joint Commission International and NABH[1]-accredited hospital in Bommasandra, Bangalore, India, operated by the Narayana Health group. This super-specialty flagship cardiac hospital of Narayana Health is one of the largest in the world and is equipped with 23 dedicated cardiac operation theatres and five Digital Cath Labs, of which one is a Hybrid, capable of performing both interventional cardiac procedures as well as complex heart surgeries.

The hospital was commissioned in 2000 as part of NH Health City, by Dr. Devi Prasad Shetty the Chairman and Founder of Narayana Health, who has performed nearly 15,000 heart surgeries.[2] Its purpose as a center was to focus on complex cardiac surgery and heart transplantation.

NICS is supplied with 23 cardiac operating theaters, five digital catheterization laboratories including a hybrid catheterization laboratory, and 200 critical care beds for post-operative care. NICS also has one of the largest pediatric intensive care units in the world. The hospital has performed free cardiac procedures for children and successfully treated heart problems on newborns, as well as adults, from several countries. NICS is capable of performing up to 60 heart surgeries per day. The cardiac procedures that are performed in NICS include: complex heart valve repair, coronary artery bypass graft, pulmonary enterectomy for chronic pulmonary embolism, the Ross procedure, ventricular aneurysm repair, left ventricular remodeling and Dor procedure, electrophysiology and left ventricular assist device (LVAD) implantation.

Awards and achievements

- Best Single Specialty Hospital in India, Cardiology in the CNBC TV 18 & ICICI Lombard India Healthcare Award 2015–2016.[3]
- First Artificial Heart Transplant in Asia [4]

C. Combining Elder Care and Indian Residency

As described in A above, by developing coastal retirement and care-home communities, we can create a strong movement akin to those in Türkiye and Portugal, which are popular among German and British retirees, but on a much larger scale.

These communities could offer a range of services from basic elder care to specialised hospice care, all tailored to cater to the needs of international clients seeking quality yet affordable living and healthcare solutions during their retirement years.

Combining these facilities with **Special Residency Permits of five years (renewable)** would make them very attractive retirement communities paid for by G7 elder citizens.

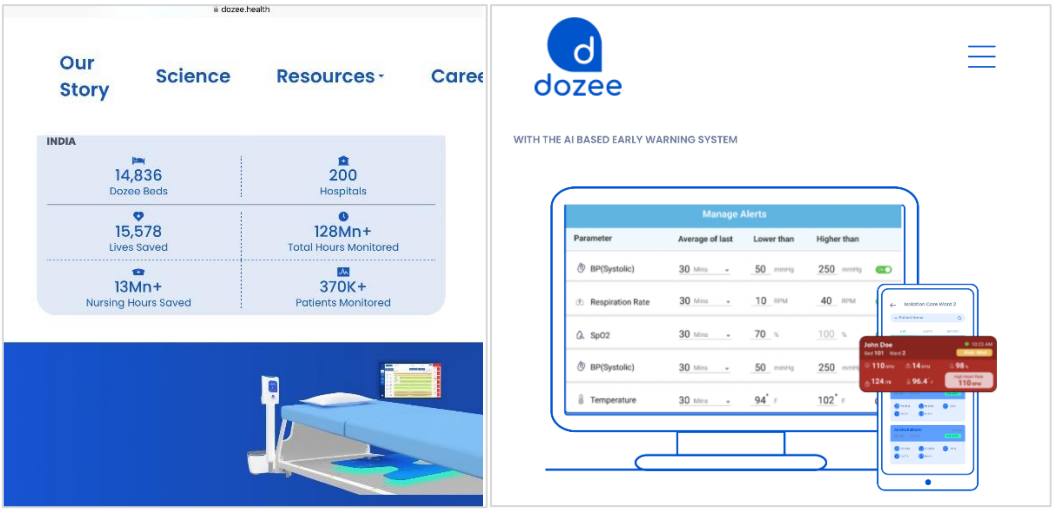
8. Technological Innovations and Their Role

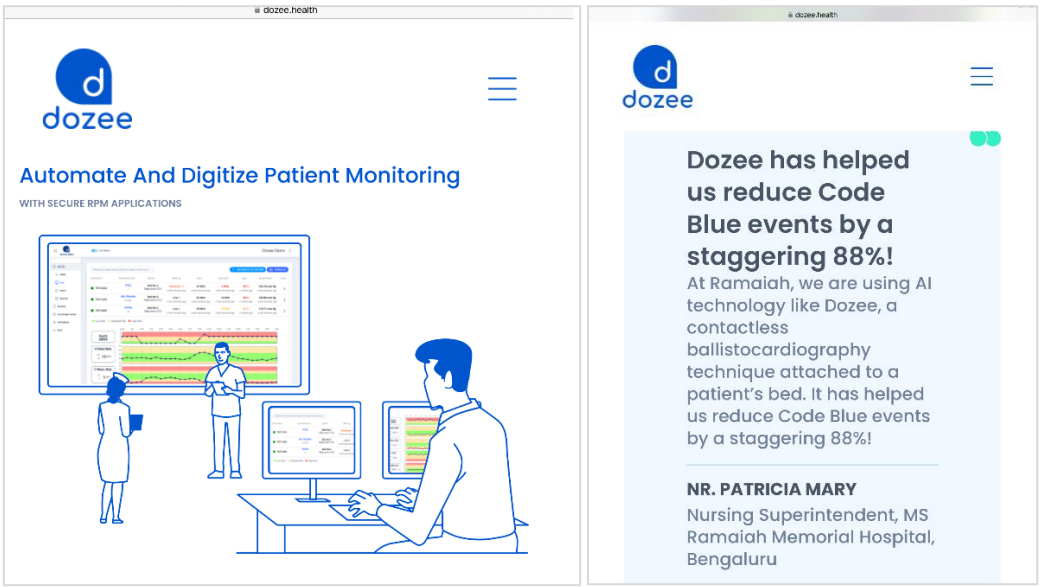
Technological innovations such as AI, robotics, and telemedicine are set to redefine the global healthcare landscape. India has made notable strides in this area, with companies and hospitals integrating advanced technologies to improve diagnostic accuracy and patient care.

The synergy between AI-enhanced tools and skilled human professionals ensures that the technological advancements **complement the human touch**, rather than replace it.

This blend of technology and personalised care makes India's medical services not only cutting-edge but also deeply humane.

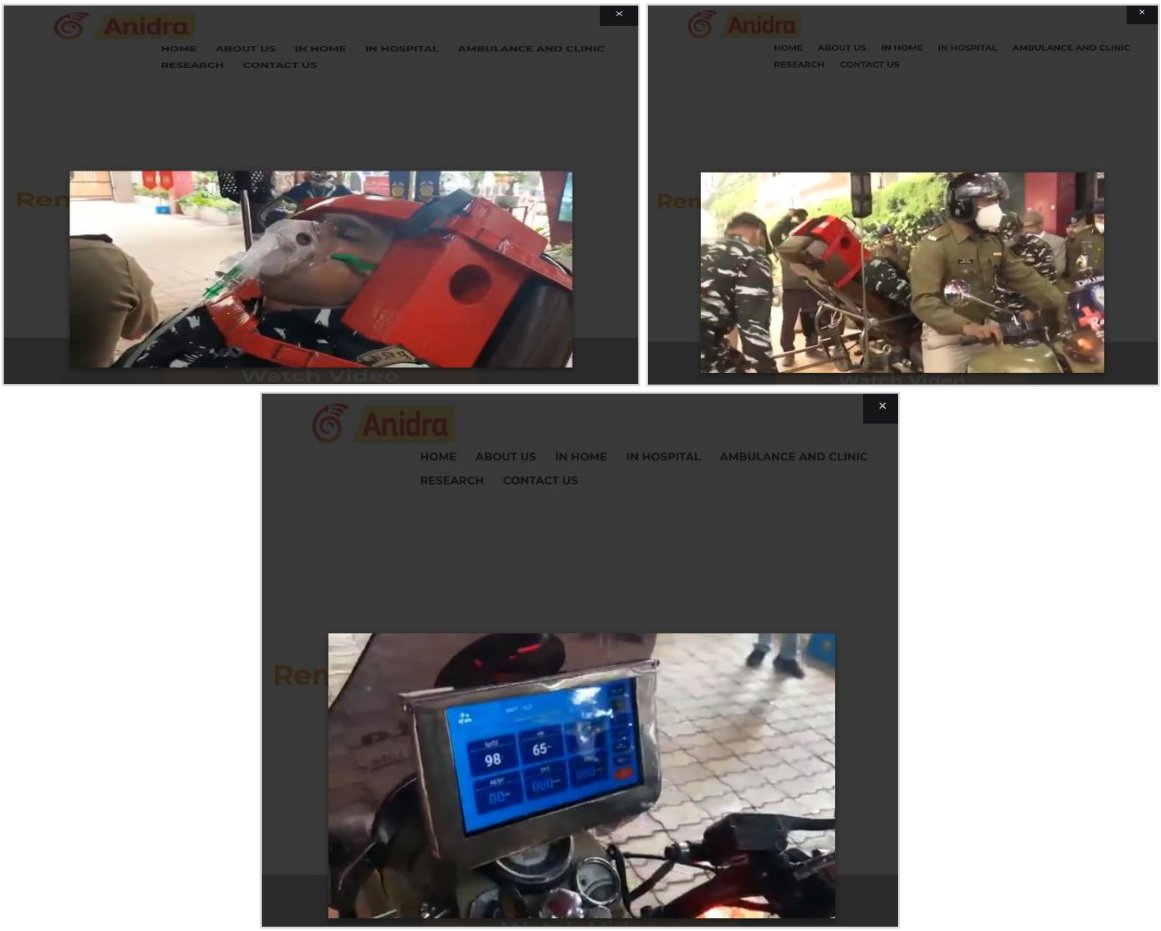
One example of MedTech innovation in India is Dozee Health that allows adaptation of an ordinary bed to a bedside vital-signs-monitored bed at short notice by placement of a pad and using **Ballistocardiography**[26], as shown here:





[26] https://www.nature.com/articles/s41598-024-52300-3

Another similar innovation, Anidra, is aimed at adaptation to motorcycle ambulances for hard-to-reach locations (e.g., hiking trails, accident sites) to monitor patients being transported, as shown below:



These innovative technologies enable Care Homes and Retirement Homes to take better care of their residents with better care quality and greater cost-efficiency.

Other innovations in practices enable higher volumes of treatment by better use of facilities and surgeons with specialist skills, often in "assembly line" processes, thereby lowering the cost of procedures, as exemplified by Narayana Health in Bengaluru and Bombay City Eye Hospital and Research Centre (also known as Kothari's Eye Surgery Unit for cataracts, LASIK, etc.) in Mumbai.

9. Conclusion

As the world grapples with ageing populations and healthcare challenges, **India's vision should be focused on becoming a Global Hub for Medical Innovation, Patient and Elder Care.**

Furthermore, addressing large markets like Retirement Homes with Elder Care, partnering with Medical Cities for advanced medical and surgical procedures, and providing greater affordability offer significant growth opportunities for establishing India as a **destination for health and wellness**.

Our beautiful coastal areas offering quality of life represent a valuable geographical resource.

Collaborations with leading international universities and research institutes could spur advancements in medical research and development.

As a preliminary first decade's target, India should aim for 200 such Elder Care Centres with their partner Medical Cities. If each centre can accommodate 250 persons with 80% average occupancy, some 40,000 persons could be supported, with average **annual fees of $25,000** adding up to $1 billion.

Over subsequent decades of accelerating growth as a result of reputation build-up, the total export earnings, including elective procedures at medical cities and relatives' tourist visits, could reach the $100-billion level currently crossed by software services export.

10. Appendix

1. Reproduction of "Promoting software exports," by Dr. Prakash Hebalkar, published in *Business India*, 28 March 1994

GATT

Promoting services exports

In light of the large export potential of the Indian services-exports sector, its interests must be secured at GATT in the coming months

The new GATT agreement contains an Annexe on Services that was being negotiated until the eleventh hour, reflecting the lack of consensus. The eventual agreement, only covers general principles and leaves all the detail to bilateral negotiations to be reflected in 'bindings' or commitments by individual countries relating to trade in specific services with specific countries. These details are still being negotiated and will not become firm until embodied in the ministerial agreement to be signed in April 1994. Thus, the whole area of services is still in ferment and subject to pressures from powerful countries for concessions. Despite the absence of an organised lobby or ministry with primary responsibility for it, unlike textiles and garments, in the area of services India too has a substantial stake. For services represent the brightest opportunity for growth in Indian exports for the next decade, eg in computer software and services, health care financial services and others. It is important that policy makers are aware of the export potential of the services exports sector and secure its interests despite pressures for compromises in the short-term interests of other sectors such as textiles.

In particular, the concessions made in Geneva on the temporary movement of labour may evaporate in the negotiation in the next few months. For instance, the publicly declared position of the negotiator from a country that is a large market for Indian services exports is that he expects to get further concessions from India (eg on access to textile markets in India) until treaty signing.

Similarly, some reportedly new concessions from a large country in the area of movement of natural persons in negotiations with India over the GATT agreement on services may turn out to be no more than the existing facility of 60,000 visas of a certain type that is based on a worldwide quota. It is therefore necessary in the intervening period between now and April that policy makers secure the fairest trade environment for India's software exports and that the absence of an industry lobby does not handicap Indian services exports in the coming decade.

By way of a checklist for ensuring a fair and free trading environment for Indian exports of services, indicated below are key areas for protection of India's interests relating to the services exports:

a) There should be no quantitative limitations (ie number of visas) on temporary movement of labour, just as there are to be no quantitative limitations on trade in goods in the form of import licences under the same GATT agreement.

b) Visas should be available at the border (ie at the local consulate) not at some interior immigration office as they relate specifically to temporary relocation and not permanent residence or citizenship. As such these visas are like port documentation for goods and so best handled at ports at the two ends of the delivery chain.

c) The rules relating to visas (eg eligibility) should be transparent (ie not discretionary), just as rules relating to trade in goods are required to be transparent under the same GATT agreement.

d) Taxes applicable to residents and/or citizens with a view to providing social security nets or retirement benefits (eg social security tax) should not apply as residence and citizenship are specifically excluded from consideration in the agreement relating to temporary movement of labour under this agreement. Such taxes being related to domicile would constitute unjustified tariffs not sanctioned by GATT.

e) Salary and wage comparisons with residents and/or citizens should not apply as it would amount to a tariff on the low cost of production and delivery of services from the developing countries. Moreover, as residence and citizenship are distinct from temporary movement of labour, such a comparison with resident salaries and wages in high-cost market economies is an invidious comparison, as between apples and oranges.

f) The temporary relocation should not necessitate sale of goods as a precondition or a prerequisite for the rendering of services (eg as notified under recent H1-B visa regulations) as the relocation agreement is in connection with trade in services and so quite distinct from and unconnected with trade in goods.

g) There should not be unreasonable limitations on repeat delivery of services using the same labour (eg a hypothetical restriction saying that 'the same person may not visit again for two years' as is associated with US visas).

h) There should be no non-tariff barriers by way of requirements for the passing of local competency examinations or local certification by medical boards or the like, except on an international standard basis for which such certification can be reasonably expected to be available in the home country of the deliverer of services.

To sum up the same principles of transparency, absence of quantitative restrictions, minimisation of tariffs and stand-still on existing tariffs until lowering of these, and so on embodied in the TRIPS, TRIMS and Tariff-Reduction sections of the agreement should be extended to the trade in services to ensure free and open markets for India's services exporters. This would be in the interest of the market economies as well, as the growing export earnings of India could fund growing imports from those economies without the risk of periodic panic shut-down as witnessed in 1991.

* of TRUMPS vs TRIPS. BUS. INDIA NOV 13 1989

PRAKASH G. HEBALKAR

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2. Reproduction of "TRUMPs against TRIPs & TRIMs," by Dr. Prakash Hebalkar, published in *Business India*, 13 November 1989

COLUMN

GATT URUGUAY ROUND

TRUMPs against TRIPs & TRIMs

PRAKASH G. HEBALKAR

The discussions at GATT regarding trade development include some new and controversial issues introduced by OECD countries, such as the EEC and the US. They concern Trade Related Intellectual Property Issues (TRIPs) and Trade Related Investment Measures (TRIMs). Both these are perceived by developing countries such as India as new obstructions to liberalisation of trade in goods, or at least as new bargaining levers. This is undoubtedly so, as trade in goods is hardly free even with the most vociferous proponents of free trade, witness the textile and sugar quota systems, agricultural subsidies and Voluntary (only nominally) Export-Restraint Agreements (VRAs).

Nevertheless, it is also true that for better or worse, these issues will be discussed at some point of time and become the "currency" of give-and-take in trade negotiations. For this reason, it is necessary to have creative and constructive alternative "currencies" to add to this give-and-take process. The Trade Related Utilisation and Mobility of Professionals (TRUMPs) is just such a proposed solution.

Readers may already be aware of the growing importance of services in international trade and the fact that many nations in the developed world already earn a very significant amount from export of services. Some statistics are revealing (*see table*).

Making a thrust

The Indian service industries today have both technological and managerial excellence to provide innovative services at prices lower than many other service organisations anywhere in the world. India should thus make a thrust in this area in a concerted and focused manner, as the country possesses unusually strong professional capabilities that compare with the industrialised countries, and represent an international strength. This, together with our proficiency in English which is the lingua franca of international trade and of the major markets in the developed world, give us unusual advantages vis-a-vis countries such as Korea and Brazil, which have to be content with exporting products in the main and concentrating on cost-effective manufacturing. This advantage shows itself not only in India's exports of computer software and consultancy services but is also evident in many other areas — not all exploited to date — signalling the emergence of a new spirit of professionalism in Indian industry and reflecting the growth of Indian exports in areas traditionally considered the preserve of developed nations.

An illustrative list of Indian service industries that should be represented in our export picture:

- Computer consultancy (eg, software, training, consultation)
- Engineering design (eg, chemical, civil, electrical, integrated circuits)
- Hospital nursing home and medical facility management
- Hotel and tourism management
- Maintenance and repair for heavy machinery, ships, etc.
- Financial services (eg, merchant banking, mutual funds)
- Advertising and audio visual presentation
- Product design (eg, industrial products, textiles)

The above services can be "exported" in a variety of ways: directly to overseas customers and projects; by being rendered to goods exporters; and by being rendered to projects in India by way of import substitution.

Those who have noticed the decreasing significance of the low manufacturing costs in LDC countries due to increasing automation of the manufacturing process (eg, the labour content of a US manufactured microcomputer is now down to about $6-10) will also find an Indian thrust into the area of services exports quite timely. For, it will open up opportunities to counter our decreasing international competitiveness in many manufactured goods, despite cheap labour, because of low productivity, design changes and lack of advantages in raw material costs.

Unmet need

A look at the nature of emigration from India and immigration into developed countries, such as the US, Canada and Australia, would also reveal the large unmet need for professionals to render services to keep their economies going and growing. As of 1 January 1984, there were 440,000 persons of Indian origin in the USA, 200,000 in Canada and 42,000 in Australia (source: Statistical Outline of India 1986-87). All these are immigrants of recent origin and primarily professionals rendering a professional service. In addition, about half of the 720,000 persons of Indian origin in the UK may be considered to be in the same category.

This makes a total of over a million professionals who have a pivotal role to play in the developed economies through their services. Their employment overseas in the developed economies and our inability to employ most of them in India itself simultaneously indicate the vast need of the OECD countries and the large potential of export earnings for developing countries. In addition, there are new types of services, such as care for the elderly,

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Health Care Just Became the U.S.'s Largest Employer

In the American labor market, services are the new steel.

DEREK THOMPSON

JAN 9, 2018 | BUSINESS

This moment was inevitable. It just wasn't supposed to happen so soon.

Due to the inexorable aging of the country—and equally unstoppable growth in medical spending—it was long obvious that health-care jobs would slowly take up more and more of the economy. But in the last quarter, for the first time in history, health care has surpassed manufacturing and retail, the most significant job engines of the 20th century, to become the largest source of jobs in the U.S.

In 2000, there were 7 million more workers in manufacturing than in health care. At the beginning of the Great Recession, there were 2.4 million more workers in retail than health care. In 2017, health care surpassed both.

Dr. Atul Gawande

Being Mortal: Medicine and What Matters in the End was released in October 2014 and became a #1 *New York Times* bestseller. It discusses end-of-life choices about assisted living and the effect of medical procedures on terminally ill people. The book was the basis of a documentary for the PBS television series "Frontline", which was first broadcast on February 10, 2015.[25]

Relevance:
Accelerating India's Healthcare capabilities to 10x by 2035—proposed PIC thrust to make Pune the dynamo for this change.
PIC could start by getting fellow Maharashtrian-American Dr. Atul Gawande to come and lead a two-day seminar on his current hot button—human resources—which also matches our needs and future strengths!

The **Indo-Pacific Economic Framework for Prosperity (IPEF) provides the requisite instrument.**

"Part of my approach to it is to break it down and try to identify where your single most important simple leverage point is. That is, making sure there are health workers who are salaried, they are paid on time, they are supported with training ⋯ and they are plugged into clinics that can support [them]."
— **Atul Gawande, head of the U.S. Agency for International Development's global health office,** told *Politico*. A famed surgeon and writer best known for examining and explaining the systems behind our health outcomes, Dr. Gawande, who took the role at USAID to turn that lens on global health earlier this year, was describing his approach to **addressing protracted global health concerns**, which have only worsened with the COVID-19 pandemic, and are already losing support for funding aid in Washington and abroad. Dr. Gawande became Assistant Administrator for Global Health at USAID in January 2022.

(**Sitaram, Gawande's paternal grandfather**, who lived in Uti, a rural village near Malegaon in India, built his farm from nothing, and lived to be 110. Sitaram maintained control of his farm until he died, even going out on horseback every night to survey it.)

A renowned surgeon, writer, and public health leader:

Prior to joining the Biden-Harris administration, Dr. Atul Gawande was a practicing general and endocrine surgeon at Brigham and Women's Hospital and a professor at **Harvard Medical School and the Harvard T.H. Chan School of Public Health.**

He was founder and chair of Ariadne Labs, a joint centre for **health systems innovation**, and of Lifebox, a **non-profit** organisation making surgery safer globally.

In addition, he was a long-time staff writer for *The New Yorker* magazine and has written four *New York Times* **best-selling books: *Complications*, *Better*, *The Checklist Manifesto*,** and ***Being Mortal*.** He is a **member** of the **National Academy of Medicine** and the winner of two National Magazine Awards, *AcademyHealth*'s Impact Award for highest research impact on healthcare, a MacArthur Fellowship, and the Lewis Thomas Award for writing about science.
In 2012, he gave the **TED talk "How Do We Heal Medicine?"**, which has been viewed more than 2 million times.[22]

About the Author

Prakash Hebalkar is a forward thinker focused on India's economy in all its aspects and particularly technology and trade, infrastructure, and education. In his professional career, after obtaining a Doctor of Science from MIT in the USA, and many years of Computer Science research in the USA, he set up India's first Computer Software and Services Export Company in the 1970s as a collaboration between the Tata Group and USA-based Burroughs Corporation. That intrapreneurial venture, Tata Burroughs Limited, had a very successful public listing and became a darling of the stock market.

Dr. Hebalkar then started his own firm focused on Strategy Consulting, ProfiTech, advising large and small multi-nationals on technology strategy and foreign trade, and providing thought leadership to several Indian government reform committees on Energy Security and Digital Automation of Income and Indirect Taxes. He has also served on multiple private and public company boards.

For over a decade, he specialised in writing and speaking about strategy and policy issues of the broader India economy in a regular column, called Strategic Perspectives, in the popular fortnightly, *Business India*. Among many others, two of those thought leadership articles stand out for driving ***dramatic national-policy changes in India:***

> The first was the need for ***a complete reversal of India's Electronics policy from a hardware focus to a software emphasis*****,** which led to today's $100+ billion software export industry.
>
> The second resulted in a key economic reform of 1991 – the ***abolition of the decades-long bureaucratic import/export licensing mechanism*** through the creation of a fungible and tradable financial instrument called ***EximScrips***.

In 2013, he organised an important national workshop of prominent economists, called The Next Big Reforms, at Lavasa in Maharashtra. The proceedings of the workshop were published in a book by the Mahratta Chamber of Commerce, Industries and Agriculture (MCCIA) and released by the then Reserve Bank of India Governor, Dr. Raghuram Rajan.

Dr. Hebalkar's curiosity about the intersection of engineering and medicine began in the 1970s when a friend at MIT pursued a joint MD-PhD programme. Although this research interest was shelved in the ensuing decades, in 2000 he was reintroduced to its new avatar by Dr. Atul Butte, a pioneer in Big Data or Digital Medicine, at the intersection of Computer Science and Medicine. Through his wife's and sister's sufferings in advanced age, this author developed a deeper understanding of senior living issues, subsequently delving into two of Dr. Atul Gawande's books, *The Checklist Manifesto*, and *Being Mortal*. These experiences and explorations form the inspiration for this strategy paper on Medical Services Export.

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