Improving Access and Equity through Digital Healthcare aided by Private Partnerships

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Your Presenter

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- In his previous assignment in Department of Expenditure, Sh. Kartik Agrawal handled Cost Studies of Government Procurements, Vetting of Price Support Scheme Claims, Re-valuation of Coal Mines Infrastructure, etc.

- In his current assignment, he is handling Analysis and Appraisal of project proposals for consideration of PPPAC, Analysis and Appraisal of project proposals under the VGF Scheme for consideration of EC, Revamping of PPPAC, VGF and IIPDF and Analysis of proposals for development of Model Concession Agreements.
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Healthcare Sector Overview:
Challenges & Opportunities
Healthcare has become one of the largest sectors of the Indian economy, growing at a CAGR of 22%.

Also one of the largest employment generating sectors in the country - Employs 4.7 Million people directly.

Sector has the potential of adding 500,000 new jobs per year.

Growth Trend of India’s Healthcare Sector (USD Billion)

**Source:** Niti Aayog
### Traditional Challenges in Sector in India

- Govt spends ~ 1.2% of GDP on healthcare and aims to increase it to 2.5% of GDP.
- Low healthcare insurance penetration in the country. High Out of Pocket expenses by citizens.
- ~ 75% of healthcare infrastructure can be found in the urban areas where only 27% of the Indian population resides.
- India has a huge shortage of doctors, nurses and paramedics. WHO recommends one doctor for every 1,000 people (1:1000), India stands at 1:1445.

### Govt's Steps in last 5 years

- 135% increase in healthcare spending in 2021-22 over last year (30.6 bn USD)
- Largest public insurance/assurance scheme in the world – Ayushman Bharat
- Health and Wellness Centres are being built on mission mode
- Significant increase in capacity. 90 Medical Colleges added in last 3 years

### Challenges posed by the pandemic led to digital interventions in health

- Opened doors for Indian **start-ups** - accelerating development of low-cost, scalable, and quick solutions.
- Pandemic has paved way for digital interventions such as **telemedicine**
These challenges and opportunities, together, make India’s healthcare industry ripe for investment

| Hospitals & Infrastructure | ✓ |
| Health Insurance | ✓ |
| Pharmaceuticals & Biotechnology | ✓ |
| Medical Devices | ✓ |
| Medical Tourism/ Medical Value Travel | ✓ |
| Home Healthcare | ✓ |
| Telemedicine & Other technology related health services | ✓ |

There is need to further innovate to attract PPP investments into the healthcare space

- In hospital segment, opportunity for expansion of private players to Tier 2 and Tier 3 locations, beyond metropolitan cities
- Domestic manufacturing of pharmaceuticals, supported by PLI schemes
- Investment in segments: contract manufacturing and research, over-the counter drugs, and vaccines
- Opportunities for expansion of diagnostic and pathology centres as well as miniaturized diagnostics
India’s PPP Landscape & PPP in Healthcare
PPP can be the panacea to India’s healthcare supply challenges

- Long-term nature of the partnership creates an opportunity for both public and private partners to leverage mutual strengths

- PPP in India has seen success in traditional sectors: transport, energy, education, urban development, tourism, and more.

- Now, PPP is being encouraged in social sectors – health, education, sanitation

Under the National Infrastructure Pipeline for FY 2020 – 2025, 2nd largest share of social sectors

- 67%
- 10%
- 9%
- 8%
- 4%
- 2%
- 0%

22% of PPP projects under social are those for creating medical infrastructure
Viability Gap Funding revamped to drive PPP uptake in healthcare

- A fully functional hospital also needs support for operational expenses (maintenance, manpower, medical equipment) other than the initial capex
- Shortfall of hospitals in Tier 2 and 3 cities

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<tr>
<th>Revamped VGF Scheme (upto 1.2 bn USD support)</th>
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<tr>
<td>✓ <strong>Huge infrastructure deficit and requirement of efficient delivery</strong> of social infrastructure services (Health, Education, Waste-water, Solid Waste Management, Water Supply, etc.)</td>
</tr>
<tr>
<td>✓ Provide much-needed boost to <strong>economically justified but commercially unviable economic</strong> and social infrastructure projects</td>
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<tr>
<td>✓ Special focus has been <strong>given to unserved and undeserved areas</strong> including aspirational districts</td>
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<tr>
<th>CAPEX</th>
<th>OPEX</th>
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<tr>
<td>Up to 60% - 80% of TPC</td>
<td>Up to 50% for first 5 years*</td>
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* Applicable only to Health and Education Sectors
PPP provisioning of healthcare can take place across multiple verticals which have 4 key characteristics

### Risk Allocation
- Transfer of risk from the public to the private sector (both parties have "skin in the game")

### Performance Indicators
- Contract based on mutually agreed upon performance indicators

### Government Ownership of Assets
- Govt. ownership of the assets (facilities & equipment) at the end of the contract

### Long-Term Contract
- Typically, 15+ years, usually at least longer than five

### Key Characteristics of PPPs in Healthcare

## Of 50+ hospitals executed via PPP in India, 4 major models have evolved

<table>
<thead>
<tr>
<th>Major Models</th>
<th>Private Partner Role</th>
<th>Public Partner Role</th>
</tr>
</thead>
</table>
| Greenfield (Build + Service) Project | FDBMOD | ▪ Land/Site (at lease)  
▪ Finance Support (VGF) |
| Brownfield (Equipment/ Infra Upgrade) Project | FDBMOD | ▪ Land & Equipment  
▪ Land & Existing Infra  
▪ Land, Existing Infra & Finance (VGF) |
| Brownfield (Equipment/ Infra Upgrade + Services) Project | EMOD | ▪ Equipment Capex & Opex  
▪ Land, Infra, Equipment & Staff  
▪ Land & Staff |
| End to End Services Project | MOD | ▪ Provide land, infra, equipment  
▪ Land lease, infra, equipment |

F: Finance, D: Design, B: Build, E: Equip, M: Maintain; O: Operate, D: Deliver
These PPP models come under three categories based on impact on healthcare services...

<table>
<thead>
<tr>
<th>Three major categories of PPPs</th>
<th>Private Partner Responsibilities</th>
<th>Common Model Names</th>
</tr>
</thead>
</table>
| Infrastructure-based model    | ▪ Private partner contracted to design, build, finance & maintain facilities  
▪ Non-clinical service such as (laundry, cafeteria etc.)  
▪ Some may include clinical services (lab, radiology) | ▪ Design Build Finance Maintain (DBFM)  
▪ Design Build Finance Maintain Operate (DBFMO)  
▪ Design Build Operate Transfer (DBOT) |
| Clinical Services model       | ▪ Private partner contracted to deliver clinical services (e.g., clinical support/specialty services) | ▪ Operation and Management (O&M) Contracts |
| Integrated PPP model          | ▪ Private partner contracted to design, build, finance, operate facilities and deliver non-clinical and clinical services | ▪ Design Build Operate Deliver (DBOD)  
▪ Public Private Integrated Partnership (PPIP) |
…of which, Brownfield PPP Models are of 3 main types

<table>
<thead>
<tr>
<th>Option</th>
<th>Private – Public Partner (CHC/DH)</th>
<th>PPP – PSU</th>
<th>PPPP (Consortium of Large and Small units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>• Existing State Government hospitals are upgraded and run by private player; transferred</td>
<td>• Existing PSU Hospitals are upgraded and run by private player; transferred back to govt</td>
<td>• Catchment area bid out exclusively to upgrade and operate existing private hospitals, with financial support – bed reservation for regulated patients</td>
</tr>
<tr>
<td>Pros</td>
<td>• Strong interest from private players</td>
<td>• Limited dependency on state government</td>
<td>• Limited dependency on government</td>
</tr>
<tr>
<td></td>
<td>• Established patient flow</td>
<td>• Some PSU hospitals already equipped</td>
<td>• Drives supply aggregation and quality</td>
</tr>
<tr>
<td></td>
<td>• Linkages with broader public healthcare system</td>
<td></td>
<td>• Bundling across areas (Tier 2 bid with Tier 4) to drive social impact</td>
</tr>
<tr>
<td>Cons</td>
<td>• Concerns around community perception of privatisation</td>
<td>• Coordination challenges with PSUs</td>
<td>• Complexities of managing multiple stakeholders</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Concerns around community perception of privatisation</td>
<td>• Potentially higher VGF needed</td>
</tr>
</tbody>
</table>

CHC Manoharpur, Rajasthan 5+5 years (E-M-O-D)  
NMDC Apollo, Chhattisgarh M-O-D
### Model Concession Framework (DEA Greenbook): Current Guidelines & Measures to Strengthen existing MCA

<table>
<thead>
<tr>
<th>Topic</th>
<th>DEA Framework for Brownfield PPPs**</th>
</tr>
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<tbody>
<tr>
<td><strong>Role of Authority</strong></td>
<td>• Provide complete access to site</td>
</tr>
<tr>
<td></td>
<td>• Provide project hospital</td>
</tr>
<tr>
<td><strong>Role of Concessionaire</strong></td>
<td>• Procure finance for facility</td>
</tr>
<tr>
<td></td>
<td>• Undertake design, monitoring, procurement, construction, upgradation, equipping and/or installation of facility</td>
</tr>
<tr>
<td></td>
<td>• Submit Annual Maintenance Plan prior to COD</td>
</tr>
<tr>
<td></td>
<td>• Obtain NABH accreditation withing 2 years of COD</td>
</tr>
<tr>
<td></td>
<td>• Undertake O&amp;M of facility</td>
</tr>
<tr>
<td></td>
<td>• Maintain consumables inventory</td>
</tr>
<tr>
<td><strong>Revenue Model</strong></td>
<td><strong>Core Revenue</strong></td>
</tr>
<tr>
<td></td>
<td>• Paid Patients – charge at rates defined in agreement</td>
</tr>
<tr>
<td></td>
<td>• Other Patients (free/ BPL)</td>
</tr>
<tr>
<td></td>
<td><strong>Ancillary Revenue</strong></td>
</tr>
<tr>
<td></td>
<td>• Concession Stand</td>
</tr>
<tr>
<td></td>
<td>• Cafeteria</td>
</tr>
<tr>
<td></td>
<td>• Florist shop</td>
</tr>
<tr>
<td></td>
<td>• Others (approved by Authority)</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>• Achieve &amp; maintain NABH Accreditation within 2 years of operation</td>
</tr>
</tbody>
</table>
# Model Concession Framework: Current Guidelines & Measures to Strengthen existing MCA

<table>
<thead>
<tr>
<th>Topic</th>
<th>DEA Framework for Brownfield PPPs**</th>
</tr>
</thead>
</table>
| **Bidding Parameters**       | *Option 1*: Authority will provide a fixed cash grant to the concessionaire. Concessionaire will in turn bid on the concession fee offered  
                              | *Option 2*: VGF quoted (Capital + Opex for 5 years) |
| **Authority Conditions**     | Provide Concessionaire unrestricted access to site  
                              | Appoint an independent monitor  
                              | Approve/ provide comments on DPR  
                              | Establish payment reserve account or letter of credit  
                              | Setup project steering committee to monitor project  
                              | Timelines established |
| **Concessionaire Conditions**| Evidence of submitting performance guarantee  
                              | Procure all permits  
                              | Submit DPR  
                              | Financial Close  
                              | Executed Escrow account  
                              | Submit Maintenance & Service Manual  
                              | Timeline & Penalty established |

**Greenbook for PPP in Brownfield Medical Hospital**
Case Study: Andhra Pradesh PPP Project (Clinical Services model)

- International Finance Corporation (IFC), WB Group assisted Andhra Pradesh in structuring a novel public-private partnership (PPP) model.
- Involves upgrading radiology services at 4 hospitals attached to medical colleges in Kakinada, Kurnool, Vishakhapatnam, and Warangal.

Success factor(s)

- Project completion took only eight months.
- Bidding parameter was average price per scan.
- Winning bidder’s quote was nearly 50 percent less than the prevailing market rate.
- This low-cost model enabled provisioning of a larger number of patients in underserved areas within a small budget.

Project awarded to (Wipro GE Healthcare Limited, an international equipment manufacturer, + Medal Healthcare Private Limited, a chain of diagnostic services) after a competitive bid.

Impact

- Diagnostic radiology services provided to ~ 100,000 patients per year.
- ~85% patients were underprivileged.
### Case Study: Uttarakhand Health Systems Development Projects (variant of Integrated model)

- **Uttarakhand Health Systems Development Project (UKHSDP)** - to be implemented over a period of 6 years expecting completion in 2023
- **Goal of project** to "**support Uttarakhand in improving access to & quality of health services and providing health financial risk protection**"
- Total project cost of **USD $125 million**
  - USD$100 million awarded by the World Bank
  - Remaining USD$25 million funded by local government.

**The project has two component areas**

1. **“stewardship and system improvement”** focuses on logistical fix for capacity building
   - Goal to hire contractors in multiple areas to help with contract management etc
   - System would improve the supply chain, multi-sectoral communication, data management, etc

2. **“innovations in the private sector”** addresses issues of rural supply:
   - mobile specialty units
   - integration of Public-Private partnership (PPP) centers
   - expanding RSBY health coverage for poor affected with Noncommunicable diseases (NCDs).
### Learnings from successful Global PPPs which can be adopted.

<table>
<thead>
<tr>
<th>Global Best Practices</th>
<th>Key Takeaways</th>
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<tbody>
<tr>
<td>6+ PPPs across Spain &amp; 3+ PPPs across Peru implemented successfully</td>
<td>• Bundling across levels of care within a district to create &quot;feeder system&quot; of smaller facilities with large sized facilities</td>
</tr>
<tr>
<td></td>
<td>• Improves viability of smaller facilities</td>
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<td></td>
<td>• Ensures comprehensive coverage of healthcare services</td>
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<tr>
<td><strong>Private player not penalized</strong> in case of delays due to admin hurdles in La Flordia and Maipu hospitals, Chile</td>
<td>• Flexible processes; conducive regulatory landscape</td>
</tr>
<tr>
<td>La Ribera PPP, Spain had payments adjusted by medical rate - higher than std. inflation</td>
<td>• 'Appropriate' inflation adjusted payments for the private player – market-linked cost for the private player</td>
</tr>
<tr>
<td>Hospital Alberto, Peru had KPIs fixed: Satisfaction, quality of care and outcomes (%complications during delivery, % resolved complaints)</td>
<td>• Shift towards outcome-based metrics to improve quality; impact evaluations and monitoring</td>
</tr>
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Some of the **roadblocks to success of PPP in Healthcare**:

<table>
<thead>
<tr>
<th>1</th>
<th>Challenging unit economics</th>
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<tr>
<td></td>
<td>Problems due to sub-optimal hospital design, highly variable revenue projections etc. (Occupancy and paying patient mix - two revenue drivers were lower than expected)</td>
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<td></td>
<td>Seven Hills, Mumbai had <strong>40% occupancy</strong> than expected; filed for bankruptcy</td>
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<td></td>
<td><strong>Limited paying capacity</strong> impacting Max Bhatinda’s profitability</td>
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<th>2</th>
<th>Increasing Operational Expenditures</th>
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<td>Input costs high (wage inflation, rising consumables, import costs), reduces margins</td>
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<td>Commercial rates for utilities, subsidized rates for government hospitals</td>
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<th>3</th>
<th>Difficult capital raising environment</th>
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<td></td>
<td>Raising funds from private banks &amp; equity investors difficult</td>
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<tr>
<td></td>
<td><em>esp for greenfield projects in Tier 2++ cities; short moratorium (1-2 years) and repayment period (5-7 years) - vicious debt cycle esp for small providers</em></td>
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<td></td>
<td>Interest rates charged by equipment providers are very high (18-20%)</td>
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<th>4</th>
<th>Inadequate reimbursements to private players</th>
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<td>Delayed and not adjusted for the full concession period</td>
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<tr>
<th>5</th>
<th>Limited provision for additional revenue streams</th>
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<tbody>
<tr>
<td></td>
<td>Unlike global Healthcare PPPs, most domestic PPPs do not have provision for additional revenue streams (example, restaurants, vacant land, pharmacy) - with few exceptions like <em>Apollo DRDO PPP</em></td>
</tr>
</tbody>
</table>
Some of the **roadblocks to success of PPP in Healthcare**

<p>| | | |</p>
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</table>
| 6 | **Restrictive eligibility criteria and technical specs in some bidding documents** | • Some RFPs have restrictive eligibility criteria/specifications allowing only a small pool to qualify  
• Draft Concession Agreements for healthcare sector under process to prevent such issues in future |
| 7 | **Partial alignment/consultation with various stakeholders** | • Public protests by public/unions/opposition, stalling/delaying where public projects are being handed over to private sector to run  
  • *Public protests against privatization of CHC Barmer (Rajasthan)*;  
  • *Protests by union, opposition for non-Maharashtra management. Palanpur Hospital-Wockhardt; Seven Hills* |
| 8 | **Poor health outcomes in few PPPs** | • Due to gaps in quality of care provided  
  *For example, GK General Hospital: High neo-natal mortality* |

Government’s tele-consultation services, e-Sanjeevani and e-Sanjeevani OPD. (Over 1 Million tele-consultations had taken place through e-Sanjeevani across 550 districts in India as of Dec 2020)

Leapfrogging with Digital Health
Post-pandemic, the **necessity of digital healthcare interventions** became paramount

- **Telemedicine and e-Health** potential solutions for addressing lack of access.
- Developed telemedicine market has **potential for export of healthcare services**.
- Affordable & quality healthcare can be enabled by **Artificial Intelligence, wearables** and other mobile technologies as well as **Internet of Things**.
- Technology products can prove to be the **next major booming industry in India**.

*How India Accessed Healthcare During Covid-19 Pandemic*

- **Fundamental approach to medicine** could change drastically with the entire human biology getting represented as data and patterns.
- **Machine intelligence** can assist doctors and patients in diagnosis and save time to address complicated cases.
Case Study: Apollo TeleHealth

- Apollo Hospitals has one of the largest & multi-specialty telemedicine network in South Asia
- **Apollo TeleHealth** has multiple PPPs with various State Governments, 750+ Telemedicine centres, 350,000+ common service centres and has delivered over 15 million + teleconsultations

Key Service Offerings under Telemedicine

- Tele Clinics
- Tele Cardiology
- Doc on Call
- Chronic Disease Management
- Tele Radiology
- Tele Emergency
- Condition Management
- Healthy Motherhood

- 183 electronic Urban Primary Health Centres (eUPHCs) established across 9 districts of AP to provide essential primary healthcare services for the urban poor living in slums
- Tele-Ophthalmology centres will be screening about 20% to 30% of the total footfalls at Community Health Centres in **Andhra Pradesh**
- Stabilisation of 1200 emergency cases has been done through tele-emergency services in **Himachal Pradesh**
- Setting up Digital Dispensaries across 100 select PHCs of **Jharkhand** with state-of-the-art equipment for vital signs monitoring, screening program, and ICT devices
- Partner for **250,000 CHCs** at Gram Panchayats through Digital India initiative
Case Study: Uttar Pradesh PPP Project (Tele-Radiology Services)

Key Challenges identified
One the most populated states (~ 230 million); dearth of healthcare providers like Radiologists; most resources at CHCs are not utilized in its entirety

Govt. initiatives to address the challenges
- Tele-Radiology services at 134 CHCs awarded to Apollo Hospitals via competitive bidding
- Scope of services include identification of technological pathways & setting up digitization, transmission and reporting of X-Rays
- Price per scan

Impact
- More than 70,000 radiology reports delivered
- Digital infrastructure / IT based solutions to be provided by selected Service Provider which shall be used to transfer images to radiologists
- Project intended to serve ~14 million people, envisions service to 2400 X-Ray reads on daily basis.
Case Study: Odisha Telemedicine solving access issue

Glocal is a social venture bringing Healthcare to the rural population in India through an integrated model of block level comprehensive primary & secondary care hospitals, digital dispensaries and technology.

- Digital dispensary or ‘a hospital in a box’ – innovative centre aiming to provide primary and emergency healthcare solutions from a single point.
- Dedicated physicians to leverage technology to provide quality primary care using Telemedicine.
- Aims at providing complete primary healthcare solution such as consultation, confirmatory tests, & medicines from a single point.

Media Update

- Govt or Civil Society gives funds or land to set up
- Oversight remains with Government
- Private provides Telemedicine and Basic Testing services
- Technicians recruited from unemployed youth in and around the village
- Subsidised rates paid by patients
Thank you
List of References

1. The Emerging Role of PPP in Indian Healthcare Sector Prepared By CII In collaboration with KPMG


4. PPPs in healthcare: Models, lessons and trends for the future, PwC report


8. Public-Private Partnership Stories India: Andhra Pradesh Radiology, IFC, WB Group


Telemedicine market is well primed for PPP on account of extensive smartphone penetration in India

Market size for telemedicine in India was around USD 830 Million in 2019. It is projected to increase to USD 5.5 Billion by 2025 growing at a CAGR of 31% during 2020-25.

Some Government Initiatives to push telemedicine

- The Government’s tele-consultation services, e-Sanjeevani and e-Sanjeevani OPD. (Over 1 Million tele-consultations had taken place through e-Sanjeevani across 550 districts in India as of Dec 2020)