

O Sun God, Savitr!  
Thou dazzling fount of life-persuasive light!  
Sublimest mystery speeding from afar!  
Swift became that burst too potent on the sight!  
This radiant type of strength and youth!  
Glowing eternally!



శ్రీ వేపచేడు విద్యా పీఠము

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Praised by singers, my God Savitar!  
Stopped forth and never missed his place!  
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Seeing, far-shining, the shining wanderer!  
- Rig Veda. vii. 65

# VEPACHEDU EDUCATIONAL FOUNDATION

## The Andhra Journal of Industrial News

### IP and Industry News

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- Kathopanishad

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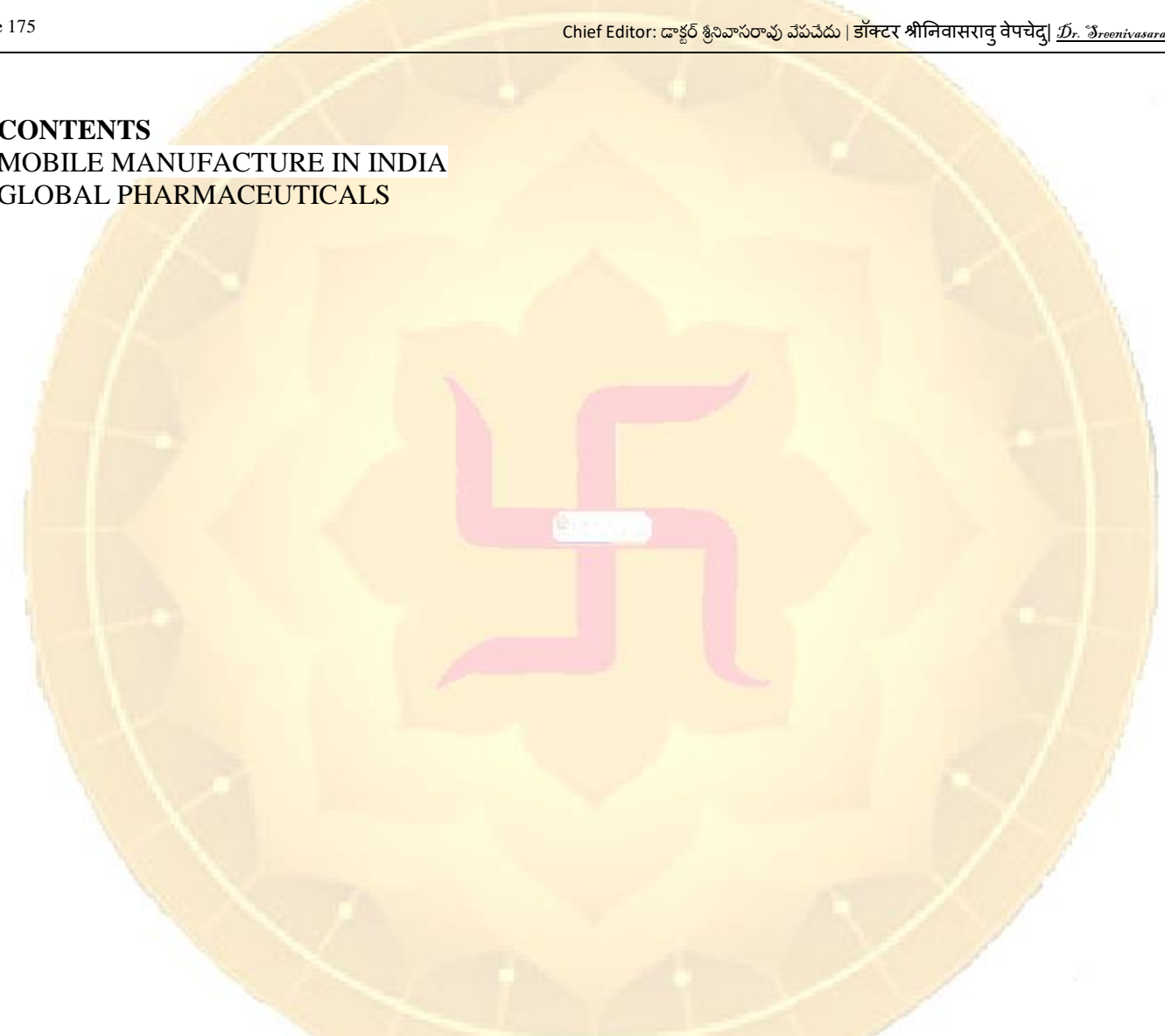
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Issue 175

Chief Editor: డాక్టర్ శ్రీనివాసరావు వేపచేడు | डॉक्टर श्रीनिवासरावु वेपचेदु | Dr. Sreenivasarao Vepachedu<sup>1</sup>

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### MOBILE MANUFACTURE IN INDIA

Globally India has the [slowest 4G speeds](#) in the world, but within India, Navi Mumbai takes the lead with the speed of 8.52 Mbps. After Navi Mumbai, Chennai has the second fastest speeds. The city has doubled from 4.4Mbps to 8.52 Mbps since March last year. Kolkata came in third with 8.46 Mbps followed by Bengaluru at 7.17 Mbps. Meanwhile, Allahabad was the only metropolitan city to register speeds lower than 4 Mbps, at the average of 3.5 Mbps<sup>1</sup>. According to research done by the Indian Cellular Association (ICA), the annual production of mobile phones within the country has increased from 3 million devices in 2014 to 11 million devices in 2017<sup>2</sup>.

A total of 268 mobile handset and component plants have setup in India and created 670,000 jobs, according to Indian Cellular and Electronics Association (ICEA). As per ICEA, the Delhi-NCR region has about 30 mobile handset manufacturing units, followed by Uttar Pradesh with 27, Haryana with 15, Maharashtra 14 and Uttarakhand 9. Delhi-NCR tops the ranking with 18 battery pack factories, followed by UP with 14, Haryana with 13, Himachal Pradesh with 7 and Maharashtra with 4. The survey further found that UP has about 39 factories dedicated to chargers/adapters, followed by Delhi with 24, Haryana with 18, Maharashtra with 12 and Uttarakhand with 10<sup>3</sup>.

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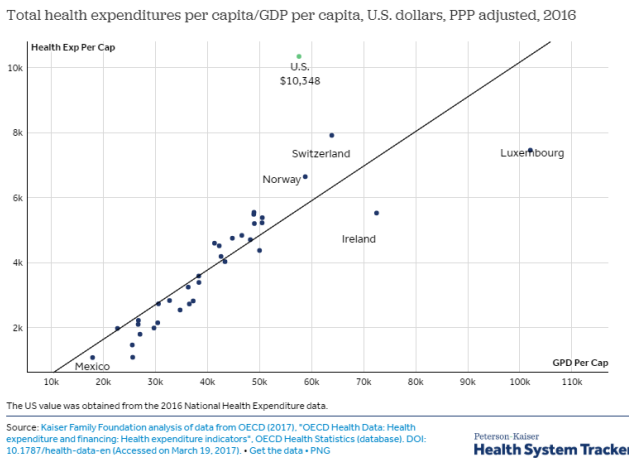
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## [DE]BRIS-MIST AND GLOBAL PHARMACEUTICAL INDUSTRY

A paper on US Healthcare<sup>4</sup> reported that in 2007, 40% of the worldwide total of approximately 6,500 drugs in clinical development were originated in the US along with the presence of many global pharmaceutical companies. US is the global leader in per capita prescription drug spending, representing between 30 and 40% of the worldwide market<sup>5</sup>.

Total US funding increased 6% per year reaching \$117 billion (4.5%) of total health care expenditures (1994-2012) and private sources increased from 46% (1994) to 58% (2012). However, due to globalization, US government research funding declined from 57% (2004) to 50% (2012) of the global total, as did that of US companies (50% to 41%), with the total US (public plus private) share of global research funding declining from 57% to 44%. Asia, particularly China, tripled investment from \$2.6 billion (2004) to \$9.7 billion (2012). The US share of life science patents declined from 57% (1981) to 51% (2011), as did those considered most valuable from 73% (1981) to 59% (2011)<sup>6</sup>.



In 2016, the total research investment in US was \$ 47,670 m, of which Federal investment was \$ 35,557 m, State and Local investment was \$ 6,648 m, and private investment was \$ 5,466 m<sup>7</sup>. Relative to the size of its wealth, in 2016, US spent a disproportionate amount on health care – \$10,348 per capita, while on average, other wealthy countries spend about half as much per person on health than the US spent<sup>8</sup>. From the graph for 2016, while US spends ~\$ 10,000 per capita x ~325 m = \$ 3,250,000 m or \$ 3.25 trillion, and the approximate expenditure for 10 advanced countries and China is \$ 10.273 trillion purchase power parity (PPP):

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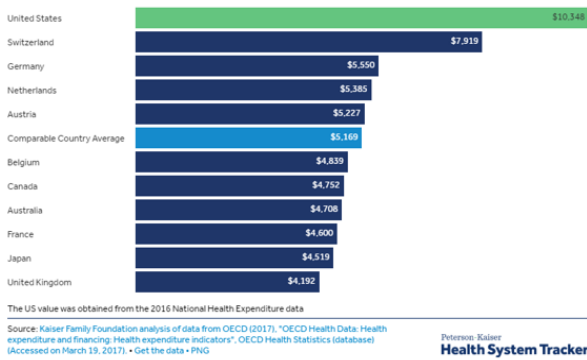
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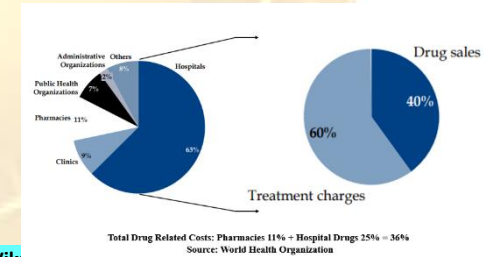
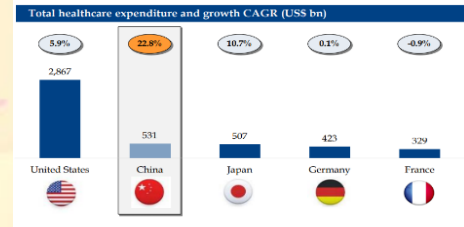
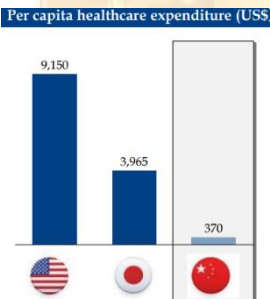
Total health expenditures per capita, US dollars, PPP adjusted, 2016



1. United States ~\$ 10,000 per capita x ~325 m = \$ 3,250,000 m or \$ 3.25 trillion
2. Switzerland \$ 8,000 x 8 m = \$ 64,000 m
3. Germany \$ 5,000 x 80 m = \$ 400,000 m
4. Netherlands \$ 5,000 x 17 m = \$ 85,000 m
5. Austria \$ 5,000 x 8 m = \$ 40,000 m
6. Belgium \$ 5,000 x 11 m = \$ 55,000 m
7. Canada \$ 5,000 x 36 m = \$ 180,000 m
8. Australia \$ 5,000 x 24 m = \$ 120,000 m
9. France \$ 5,000 x 67 m = \$ 335,000 m
10. Japan \$ 5,000 x 126 m = \$ 630,000 m
11. UK \$ 4,000 x 66 m = \$ 264,000 m
12. China \$ 700 x 1.3 b = \$ 8,100 b<sup>9</sup>

**Total for these selected 11 countries is 10.273 trillion PPP and the total for 12 countries analyzed including US is 13.5 trillion PPP.**

If we consider top 5 countries' Healthcare expenditures based on 2013 data, and Compounded Annual Growth Rates (CAGRs) between 2008-2012 data from WHO, the US healthcare expenditure is more than that of the remaining four countries combined. China is using 3% of global healthcare spending to address healthcare needs of 22% world's total population<sup>10</sup>. The per capita US dollars provided in the WHO report based on 2013 data for US (\$ 9,150), JP (\$3,965), and CN (\$370). Per country, US ~\$3 trillion (\$ 9,150 per capita x ~325 m = \$ 2,973,750 m or 2.9 trillion), JP ~\$ 0.5 trillion (\$ 499,590 b), and CN ~ \$ 481 billion.



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The healthcare cost includes cost of many items as shown here, and the cost of medicines obtained in hospitals and from pharmacies is only 36% of the total healthcare cost.

#### AFRICAN CONTINENT<sup>11</sup>

Population (2015): 1 BILLION  
Average Current Health Expenditure (CHE) as % of GDP (2015): 6.18%  
Average Current Health Expenditure (CHE) per capita USD (2015): \$114  
Average GDP per capita USD (2015): \$2,200

#### AMERICAS<sup>12</sup>

Population (2015): 1 BILLION  
Average Current Health Expenditure (CHE) as % of GDP (2015): 7.61%  
Average Current Health Expenditure (CHE) per capita USD (2015): \$1,172  
Average GDP per capita USD (2015): \$12,179

#### CARIBBIANS<sup>13</sup>

Population (2015, thousands): 7.2 MILLION  
Average Current Health Expenditure (CHE) as % of GDP (2015): 5.77%  
Average Current Health Expenditure (CHE) per capita USD (2015): \$656  
Average GDP per capita USD (2015): \$10,851

#### EURASIA

##### ASIA PACIFIC<sup>14</sup>

Population (2015): 1.8 BILLION  
Average Current Health Expenditure (CHE) as % of GDP (2015): 5.70%  
Average Current Health Expenditure (CHE) per capita USD (2015): \$1,338  
Average GDP per capita USD (2015): \$19,143

##### EUROPE<sup>15</sup>

Population (2015): 1 BILLION  
Average Current Health Expenditure (CHE) as % of GDP (2015): 7.94%  
Average Current Health Expenditure (CHE) per capita USD (2015): \$2,192

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Average GDP per capita USD (2015): \$27,017

### MEDITERRANEAN<sup>16</sup>

Population (2015): 0.6 BILLION

Average Current Health Expenditure (CHE) as % of GDP (2015): 5.35%

Average Current Health Expenditure (CHE) per capita USD (2015): \$562

Average GDP per capita USD (2015): \$12,120

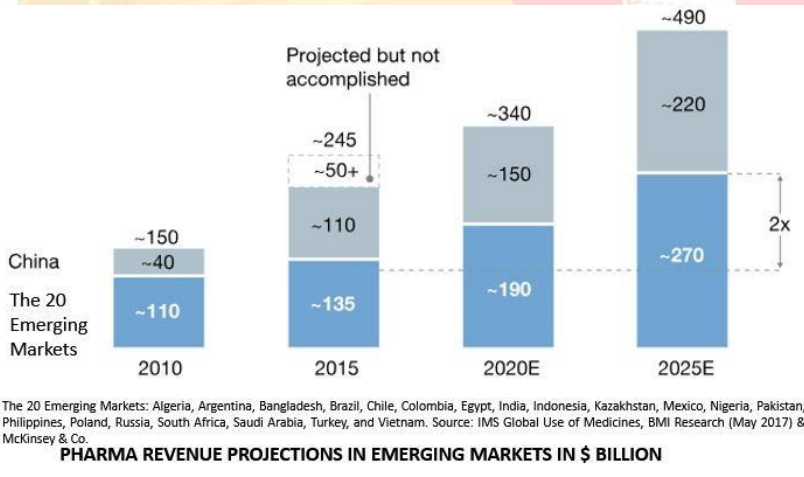
### INDIAN CONTINENT<sup>17</sup>

Population (2015): 2.2 BILLION

Average Current Health Expenditure (CHE) as % of GDP (2015): 4.58%

Average Current Health Expenditure (CHE) per capita USD (2015): \$175

Average GDP per capita USD (2015): \$3,096



According to a report by McKinsey, developed markets like the United States are doing rather well. Pipelines have been refreshed, for instance, the top ten pharma companies have some 650 products in development for oncology, and new drugs are showing great promise. Products that are commercially successful in developed markets won't necessarily do as well in emerging markets, due to their price levels, local clinical pathways, or disease prevalence for an emerging market.

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Issue 175

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There is no precise definition, but emerging markets are developing countries in which investment is expected to result in higher income despite high risks. Sales of the pharmaceutical markets in Brazil, Russia, India, China, and South Africa (BRICS) and Mexico, Indonesia, South Korea, and Turkey (MIST) doubled in 5 years, reaching a market share of approximately 20%. The opportunities in emerging markets are less abundant than before. China, the erstwhile emerging market, has joined the ranks of the developed markets such as United States, Europe, and Japan. The remaining BRICS sans China are the largest economies in the emerging markets namely Brazil, Russia, India, and South Africa (BRIS).

Pharmaceutical regulations are a combination of legal, administrative, and technical measures that governments take to ensure the safety, efficacy, and quality of medicines, as well as the relevance and accuracy of product information. Such regulations are required both for new and already existing products, in order to improve health status, and play an important role in ensuring the safety and efficacy of the approved drugs. These regulations apply to innovation, manufacturing, drug testing, marketing, and post marketing studies to maintain the standards of the drug at every step until reaching the patient in each country<sup>18</sup>. Further complications are inevitable as the global Internet and accessibility combined with Artificial Intelligence, Automation, Digitization, Continuous Manufacturing, and 3-D Printing play a considerable role in the pharmaceutical industry as well<sup>19</sup>.

At present, there is no single platform that allows interaction between governments, global health organizations, partnerships, regional organizations, multilateral and bilateral agencies, philanthropic foundations, private sector organizations, and other relevant stakeholders. Multinationals need a long-term view and take calculated risks by investing in emerging markets to see a doubling of revenues in the next ten years in for the top 20 remaining still emerging markets, including [de]BRIS-MIST, by organizing emerging and developed markets separately. Companies could pursue differentiation based on share of voice, key-account management, and other familiar elements for traditional products, while pursuing more innovative approaches involving both public and private partnerships, strong market-access capabilities, and novel pricing models for specialty products<sup>20</sup>.

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Glowing eternally!



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“Where the mind is without fear and the head is held high, Where knowledge is free Where the world has not been broken up into fragments, By narrow domestic walls.” Rabindranath Tagore (1861-1941), Gitanjali, 1912.

One World One Family  
AUM! SWASTI!

Om! Asatoma Sadgamaya, Tamasoma Jyotirgamaya, Mrityorma Amritamgamaya, Om Shantih, Shantih, Shantih! (Aum! Lead the world from wrong path to the right path, from ignorance to knowledge, from mortality to immortality, and peace!)

SWASTI! AUM!

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