MORE HASTE, LESS SPEED: OLD TENSIONS AND NEW PARADOXES OF ROUTINE IMMUNIZATION IN NIGERIA

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ABSTRACT
The World Health Organization (WHO) defines Routine Immunization (RI) as the sustainable, reliable and timely interaction between the vaccine, those who deliver it and those who receive it to ensure every person is fully immunized against vaccine preventable diseases. In Nigeria, these noble ideals have interfaced with ignoble practices that do not sustain immunization. The mainstream view locate the apparent intractability of the Nigerian immunization problem in such internal factors as massive infrastructural decay, inconsistency in health funding and services causing variations by state and local government. These exist side by side with ethnic, religious and political problems that perpetuate instability to the detriment of routine immunization. There exist also in Nigeria, high levels of illiteracy that obfuscate the need for routine immunization otherwise deemed most beneficial in a low income country like Nigeria. However, this approach over simplifies the wide range of complex relationships that culminate in routine immunization in Nigeria and the World writ large. It also obscures the global effort of making routine immunization available to all and the attendant global divide which puts the global South at a disadvantage in vaccine production, distribution and uptake. Highlighting the fact that Nigeria is a dependent peripheral capitalist economy, this study takes a historical view of the relationship between the international health delivery agencies and Nigeria in interrogating the progress of routine immunization in Nigeria. This study posits that the relationship rekindles old tensions which in turn churn up new paradoxes in routine immunization. The study draws mainly on library sources and interview of serving and retired health personnel at the state and local government levels in Imo State, Nigeria who have been part of the National Program on Immunization. The political economy paradigm is employed here as tool for analyses while available data are represented in tables, figures and percentages/graphs.

Keywords: Routine Immunization, Vaccine, Underdevelopment, Disease.

1. INTRODUCTION: IMMUNIZATION IN NIGERIA

It is perhaps a statement of fact that as a result of the combined efforts of the Nigerian government and her health personnel on the one hand, international health institutions and donor agencies on the other hand, immunization in Nigeria has come a long way. The efforts of the international health institutions and donor agencies are represented mainly by the activities of the World Health Organisation (WHO), the United Nations Children Education Fund (UNICEF) and such donor agencies as Bill and Melinda Gates Foundation, the European Union (EU) and Gavi The Vaccine Alliance. For emphasis, we mention a few of these international supports:

Gavi support for Nigeria include measles vaccine supplementary immunization activities, Meningitis A vaccine, Pentavalent Vaccine, Pneumococcal Vaccine, Yellow Fever Vaccine campaigns and the commitment of USD 697,627,445 between 2001 and 2016 (www.gavi.org).

The European Union has also supported routine immunization in Nigeria. As part of this support, the European Union on October 27, 2017 commissioned solar refrigerators, vehicles and other equipment to support routine immunization activities in Abuja, the Federal Capital Territory and 23 states in Nigeria. As part of ongoing efforts to revamp routine immunization in Nigeria, the European Union Support to Immunization Governance In Nigeria (EU-SIGN) project is a follow up to the partnership to Reinforce Immunisation Efficiency (EU-PRIME) and the Support to Routine Immunisation in Kano (SRIK) projects which were implemented from 2002 – 2011. (https://reliefweb.int).

It is in this vein that the International Vaccine Access Center's (IVAC) "landscape Analysis of Routine Immunization in Nigeria" highlights Nigeria's commendable improvements in routine

immunization which led to the National DTP3 coverage rate reaching a record 60% in 2010 (Wonodi et al 2012:1). In addition, there is the success in measles vaccination which recorded an estimated 71% of target population vaccinated by 2011 as against 33% in 2000.(Esangbedo et al2012:22). These are heartwarming achievements in view of the fact that the national immunization scheme known as the Expanded Programme on Immunization (EPI) which was launched by WHO in 1974 to combat the childhood killer diseases vizly Measles, Poliomyelitis, Whooping Cough/Pertussis, Tetanus, Diphtheria and Pneumonia was only started in Nigeria in 1979. Earlier introduction of immunization into Nigeria in 1956 was in response to the small pox epidemic and could not be sustained. The Expanded Programme on Immunisation was restructured in 1997 and renamed the National Programme on Immunisation as a parastatal of the Federal Ministry of Health by decree 12 of 1997 (Adeiga 2014:3).

However, the rampant incidence and/or resurgence of vaccine preventable diseases at epidemic proportions suggest that more commitment in human and material resources as well as scientific research are required to mitigate and possibly eliminate the ravening onslaught of these diseases. In addition to such identified challenges to routine immunization in Nigeria as;

a. The increasing number of unimmunized children from 2.5 million in 2011 to 3.2 million in 2012.
b. Huge disparities in immunization coverage within and between states and regions and between rich and poor, ranging from 46% in the North East zone to 91% in the South East zone. (Esangbedo et al 2012:22)
c. Vaccine related challenges including frequent unavailability of vaccine, vaccine storage capacity, cold chain maintenance and electricity. (Adeiga 2014:7-9)
d. Vaccine hesitancy, resulting from religious/cultural belief systems, lack of awareness of the benefits of vaccination as well as mistrust arising from many years of colonial exploitation and unabated imperialism even after Nigeria gained independence. (Jegede 2007)

There is also, the scourge of Malaria, HIV and Tuberculosis which are vaccine preventable diseases but whose vaccines have not been developed. (Levine, Kremer & Albright 2005:2).With an estimated 100 million malaria cases and over 300,000 deaths annually in Nigeria, there are more cases of malaria and deaths arising from malaria than any other country. Also about three billion people in 106 countries suffer from malaria. This figure is about half the world's population. However, 90% of malaria deaths globally take place in thirty sub-Saharan African countries including Nigeria (Malaria fact sheet). The incidence and mortality rate in tuberculosis and HIV/AIDS in Nigeria are no less devastating. While the total tuberculosis incidence in Nigeria was four hundred and seven thousand in 2016, one hundred and fifty four thousand deaths resulted from the disease. Tuberculosis is the 9th leading cause of death worldwide and the leading cause from a single infectious agent ranking above HIV/AIDS. (See table 1.)

Table 1: Statistics for TB in "High Burden" Countries 2016

Country	HIV Negative TB Mortality	HIV Positive TB Mortality	Total TB Incidence	HIV Positive TB Incidence	Population
Angola	18,000	6,900	107,000	18,000	29,000,000
Bangladesh	66,000	180	360,000	500	163,000,000
Brazil	5,400	1,900	87,000	11,000	208,000,000
Cambodia	3,200	450	54,000	1,300	16,000,000
Central African Republic	2,700	2,500	19,000	6,200	5,000,000
China	50,000	1,800	895,000	11,000	1,404,000,000
Congo	3,100	2,100	19,000	5,100	5,000,000
DP Congo	53,000	8,500	254,000	20,000	79,000,000
DDR Korea	11,000	50	130,000	280	25,000,000
Ethiopia	26,000	4,000	182,000	14,000	102,000,000
India	423,000	12,000	2,790,000	87,000	1,324,000,000
Indonesia	110,000	13,000	1,020,000	45,000	261,000,000
Kenya	29,000	24,000	169,000	53,000	48,000,000
Lesotho	1,100	5,200	16,000	12,000	2,000,000
Liberia	2,800	960	14,000	2,200	5,000,000
Mozambique	22,000	33,000	159,000	72,000	29,000,000
Myanmar	25,000	4,900	191,000	18,000	53,000,000
Namibia	750	870	11,000	4,200	2,000,000
Nigeria	115,000	39,000	407,000	63,000	186,000,000
Pakistan	44,000	2,100	518,000	6,900	193,000,000
Papau Now Guinea	3,600	820	35,000	3,600	8,000,000
Philippines	22,000	300	573,000	6,000	103,000,000
Russian Federation	12,000	1,700	94,000	18,000	144,000,000
Sierra Leone	3,400	1,000	22,000	3,100	7,000,000
South Africa	23,000	101,000	438,000	258,000	56,000,000
Thailand	8,600	3,900	119,000	10,000	69,000,000
UR Tanzania	28,000	27,000	160,000	54,000	56,000,000
Vietnam	13,000	850	126,000	4,200	95,000,000
Zambia	4,800	12,000	62,000	36,000	17,000,000
Zimbabwe	1,200	4,400	34,000	23,000	16,000,000
Total for High burden countries	1,130,000	317,000	9,060,000	866,000	4,710,000,000

Source: tbfacts.org

Also, available 2016 data indicate that there are 3.2 million people living with HIV in Nigeria. Thus, Nigeria has the second largest HIV epidemic in the world. In addition, her new infection rate is one of the highest in Sub-Saharan Africa. Malaria, HIV and Tuberculosis are referred to as "diseases of the

poor". These diseases are predominant in the underdeveloped countries of the world. For instance, apart from China, all the tuberculosis "High burden" countries are third world countries as shown in table 1. The enormity of these statistics and the concentration of the risk burden of these diseases in the underdeveloped countries of the world suggest that motives outside the need to save lives govern the intricate relationships of vaccine development, distribution and uptake that culminate in routine immunization in Nigeria, and the globe writ large. That is the focus of this paper. The paper highlights the entrenched interests of Pharmaceutical Multinational Corporations in the development of vaccines with a view to debunking the myth of international health interventions in Nigeria and the third world at large as charity.

It is in this vein that this paper opines that the shortfall in the supply and indeed the non-development of vaccines for the diseases of the poor is to a large extent hinged on the parlous economy of Nigeria and the third world at large. This unfortunate situation derives directly from the asymmetric ordering of countries as developed or underdeveloped; their international status as dependent peripheral economies and their colonial history. These historical particularities have disadvantaged Nigeria abinitio in the prevalent global economic order dichotomized between North and South. Where, the North is epitomized by the rich, industrial and developed countries of Europe and America while the South is represented by the poor, non-industrial and underdeveloped countries of Africa, Asia and Latin America. This paper proceeds by critically examining empirical evidence of underdevelopment and dependency in Nigeria which the researchers view as stoking old tensions and their relationship to the dearth and/or availability of vaccines.

Table 2: African Population Projections, 1950 – 2100 (Population in millions)

Selected Countries	1950	1980	2000	2025	2050	2100	Total fertility rate	Year in which NRR = 1
Cameroon	4.6	8.7	17	30	42	50	6.6	2030
Ethiopia	18.0	37.7	64	106	142	173	5.5	2035
Ghana	4.4	11.5	23	40	53	62	7.0	2025
Kenya	5.8	16.6	37	69	97	116	8.0	2030
Malawi	2.9	6.0	11	21	29	36	7.6	2040
Mozambique	6.5	12.1	22	39	54	67	6.5	2035
Niger	2.9	5.5	11	20	29	38	7.0	2040
Nigeria	40.6	84.7	163	295	412	509	6.9	2035
Tanzania	7.9	18.8	37	69	96	120	7.0	2035
Uganda	4.8	12.6	25	46	64	80	7.0	2035
Zaire	14.2	27.1	50	86	116	139	6.3	2030
Other sub-sahara	59.8	121.7	218	381	524	651	6.5	2040
Total sub-sahara	172.4	363.0	678	1202	1658	2041	6.7	2040
Total African	215.0	452.6	826	1427	1940	2360	6.5	2040
Other African	42.6	89.6	148	225	282	319	5.5	2025

Source: Anah C. I (2009)

NRR = Net Reproductive Rate. When NRR = 1, Fertility is at reproductive level

In the next part, this study highlights the impact of the historical particularities of Nigeria on Routine Immunization which churn out unexpected reactions/response that contradict the expectations of practitioners as well as observers of Routine Immunization in Nigeria. The last part of this research suggests ways and means of overcoming these challenges in order to attain the dual benefits of routine immunization by protecting the "vaccinated persons against infection and severe diseases and reducing transmission, thereby offering indirect protection to those not vaccinated". (Smith, Lipsitch and Almond (2011:9).

2. VACCINES: DEARTH AND AVAILABILITY AS INDICATION OF OLD TENSIONS IN NORTH-SOUTH DIVIDE

From the World Health Organization's definition of Routine Immunization as "the interaction between the vaccine, those who deliver it and those who receive it to ensure every person is fully immunized against vaccine preventable diseases" (www.who.int/immunization), it is safe to conclude without fear of equivocation that vaccines are the lifeline of immunization. This claim is substantiated by the fact that many of the literature on the challenges of routine immunization in Nigeria highlight such vaccine related problems as, vaccine stock out, inadequate vaccine storage capacity, frequent unavailability of vaccines or problems of vaccine supply (IVAC 2012, Adebesin 2016, Adeiga 2014, Ophori et al 2014). Therefore, the availability or otherwise of vaccines to a large extent determine the success or failure of routine immunization in Nigeria and the World writ large. A vaccine is prepared to initiate and sustain active immunity to a particular disease. The immunity is initiated because the vaccine preparation is made to contain an agent that is similar in many ways to the microorganism that causes the disease which the vaccine is to provide immunity against. The vaccine is therefore prepared from weakened forms of the said microorganism, its surface protein or toxins. The agent in turn acts as a trigger, causing adaptive immune response to the human body immune system whenever it comes in contact with the microorganisms related to the agent, helping the immune system to recognize same as not only a threat but also destroy it, even in future encounters.

Since Edward Jenner discovered the small pox vaccine in1798 and subsequent advances made in vaccine production, vaccines have contributed immensely to improvements in human health in three related ways. First vaccines are preventive rather than curative. This has saved millions of children and even adults from not only death but also the increased debilitation of diseases. In essence, vaccine use prevents infection thus reducing morbidity and mortality. The old aphorism "prevention is better than cure" is instructive here. Secondly, vaccines are overall cheaper than even antibiotics in maintaining good health. This is more so in the case of Nigeria where the cost of vaccines is borne by the government. Also, the non-governmental organizations mentioned above subsidize the cost of vaccines in Nigeria. In a study carried out on the "Benefits from Immunization during the vaccines for children program era – United States 1994 – 2013" It was found that the cost of a dose of vaccine in a private clinic was estimated at $29.09 while in the public clinic it cost $8.15 (MMWR 2014:63, 2 – 5). In Nigeria, it is estimated that $17 billion dollars can be saved over the next ten years by scaling up coverage of HIV, pneumococcal, measles, pertussis and rotavirus vaccines to 90% (Nigeria 1st National Vaccine Summit 2012) The third advantage of the vaccine is its ability to provide herd immunity. Herd immunity also known as Community Immunity refers to that situation whereby a large number of people within a given population are immune to a particular disease, perhaps as a result of early immunization. This reduces the chances of infection thereby providing limited protection for people who are not immune.(See table 3.)

Table 3: Herd Immunity Thresholds of Vaccines – Preventable Diseases

Disease	Transmission	Basic Reproduction Number	Herd Immunity Threshold
Measles	Airborne	12 – 18	92 – 95%
Pertussis	Airborne droplet	12 – 17	92 – 94%
Diphteria	Saliva	6 – 7	83 – 86%
Rubella	Airborne droplet	5 – 7	80 – 86%
Small pox	Airborne droplet	5 – 7	80 – 86%
Polio	Fecal – Oral route	5 – 7	80 – 86%
Mumps	Airborne droplet	4 – 7	75 – 86%
SARS	Airborne droplet	2 – 5	50 – 80%
Ebola	Bodily fluids	1.5 – 2.5	33 – 60%
Influenza	Airborne droplet	1.5 – 1.8	33 – 44%

Source: https://ourwordindata.org

Despite the advantages of vaccines enumerated above and the commendable efforts of the World Health Organization, the United Nations Children Education Fund, the European Union, the Vaccine alliance and the subsidy of the federal government of Nigeria highlighted earlier, vaccines remain beyond the reach of Nigerians. The reasons for this are both political and economic and these two factors reinforce each other. The political factors are the result of the country's history of colonization which has brought about neo-colonialism and imperialism.

These in turn have made the Nigerian economy dependent, disarticulated and underdeveloped, thus breeding poverty. It is this dependent, disarticulated and underdeveloped Nigerian economy that is made manifest in the epileptic supply of vaccines, inadequate cold chain infrastructure, inconsistent health services varying by state and local government and the lack of political will by local governments to provide their counterpart funding/support for National program on immunization in Nigeria. Colonialism, neo-colonialism and attendant imperialism represent old tensions emanating from the North – South divide. These tensions to a large extent determine the dearth and/or availability of vaccines for routine immunization in Nigeria. This relationship is succinctly explained here.

The colonisation of Africa, Asia and America by Europe is essentially a Capitalist venture aimed at the maximization of profit. Occasioned, mainly by the quest for raw materials for European industries and markets for their manufactured goods, colonization did not only impoverish the colonized. It also stifled the development of local industries and technology, as the Nigerian economy, industries and technology responded to the changes instituted and enforced by the colonialists. Such changes saw Nigeria and other colonized African countries become sources of raw materials for industries in Europe and America and dumping ground for their finished products and obsolete ideas and technology. Colonization also disrupted the social network of trade and industrial relationships that linked the various ethnic nationalities in pre-colonial Africa. Nnoli (1978) represents this disruption as a change in the material circumstances of the African enforced through forced labour, taxation and the introduction of new currency. At the level of ideology, it distorted, disfigured and destroyed the culture and history of the colonized people.

The end of the colonial era in Nigeria was not marked by an end to colonial exploitation. Such structures as Multinational Corporations (MNCs) instituted by the colonialist continued the

exploitation of human and natural resources in various forms. In addition to the MNCs, such international financial institutions as the World Bank, the International Monetary Fund (IMF) and their diplomatic counterparts like the United Nations Organisation(UNO) have in their actions and inactivity manifested the influence of the leading industrial countries on them. It is in this vein that Pontigliano and Appelgvist (2011:31) posit that,

> *"Organizations are not neutral. They adopt legitimated norms and values transmitted through the institutional environments to which they conform in order to receive support and legitimacy".*

This view is buttressed by President Donald Trump's withdrawal of the $400 million annual donation to the World Health Organization by the United States of America. Donald Trump accused the WHO of "Sino-centric behavior". Writing in the Telegraph Newspaper, Hemmings supports Donald Trump's claims. According to Hemmings, the World Health Organization has come under China's growing and malign influence. These criticisms are directed at the WHO director, Tedros Adhanon Ghebreyesus who is said to owe his appointment to China. The director is accused of having delayed announcing the COVID-19 Pandemic as a pandemic to avoid hurting China's International standing. As China was detaining her own doctors and suppressing genomic research on the disease, Tedros was praising China for her transparency.

In Hemmings words, "This corruption of the WHO's functions is symptomatic of a wider trend, which has seen Beijing take over one-third of the UN's 15 specialized agencies, appointing its officials to important posts where they immediately begin implementing "sino-centric" policies, using a combination of arm-twisting and lobbying". Hemmings concludes that "China has deep pockets, with which to win support, seaports, 5G networks and hydropower dams (which) give it sway in the UN General Assembly" (www.telegraph.co.uk) If China has penetrated the WHO in order to a large extent influence the decisions, actions and inactivity of the organization, it is not only possible but reasonable to believe that China has succeeded in doing what the West has been doing over the years. This proves to a large extent that organizations are not neutral. It is from this view point that one can understand the role of the WHO, UNICEF, the World Bank, pharmaceutical multinational corporations and other International financial/ diplomatic agencies in vaccine production, distribution, access, uptake and routine immunization in Nigeria.

In the executive summary to the World Health organization, United Nations International Children Education Fund and World Bank publication "State of the World's Vaccines and Immunization" (2009) the authors reiterated the fact that economic crises can make governments cut down on their social sector spending, while international donor agencies may cut down on their assistance. These will invariably lead to increase in poverty and deaths among children under five years of age. The authors went further to assure that since poverty, illness and premature death cannot be wished away the global goals of equity and social justice are still to be achieved. These are indeed laudable objectives by these revered international institutions/organizations. However, coming from the same international organizations particularly the World Bank which worked in tandem with the International Monetary Fund (IMF) about a decade before the afore mentioned publication to unleash the Structural Adjustment Program (SAP), leading to the devaluation of currency and attendant economic crises in Nigeria and other underdeveloped countries, the allusion to equity and social justice portray the double standards that have sustained the North – South divide.

Using the devaluation of the Naira as an example of the old tensions that adversely affect the availability of vaccines in Nigeria, it becomes obvious that at the current exchange rate of One dollar to Four Hundred Naira or thereabout, it is almost impossible for Nigeria to make a prompt financial

commitment for early delivery of vaccines for Routine Immunization. This is more so in an economy that is largely dependent on the ever fluctuating sale of crude oil for her foreign exchange earnings. This situation is made worse by the international division of labour which has confined Africa but Nigeria in particular to the production of raw materials for the industries of Europe and America as shown in table 4. This situation of unequal exchange exacerbated by the exchange rate skewed in favour of the developed countries breeds poverty, social injustice and deaths among children under five years of age which the WHO, UNICEF and World Bank profess to protect.

The logical option would have been that Nigeria manufactures her own vaccines. However, the colonial experience robbed Nigeria of the ability and credibility to manufacture. We will look at how the colonial experience robbed Nigeria of the ability to manufacture first before examining the loss of credibility. Studies have shown that science, technology and manufacture were alive and thriving in pre-colonial Africa and Nigeria in particular (Rodney 1972, Nnoli 1978, Perchonock 1994 and Palin 2002). According to Michael Palin (2002)

In the 15th century in Timbuktu*, the mathematicians knew about the rotation of the planets, details of the eclipse, things we (the West) had to wait for almost 200 years to know in Europe* (New African 2006:65)

This claim to scientific excellence in pre-colonial Africa is buttressed by the fact that the famous Vasco Da Gama's "discovery" of the sea route to India was aided by an East African sailor. By the first quarter of the 15th century, Chinese traders had established trading relations with such coastal empires of East Africa as Malindi, Mombasa and Zimbabwe. This was before European explorers made inroads into East Africa. (Williams 2006). Also, Perchonok's (1994) account of Kano as a pre-colonial city highlights the important fact that Kano was a centre of production where crafts in leather, textile and metal works thrived, to the extent that Heinrich Barth and other European travellers compared Kano as a manufacturing centre with Manchester and Birmingham in England. However, the British Colonialists introduced a policy of deliberate de-industrialization which did not only stagnate but eventually eliminated indigenous manufacture and technology. For instance, cotton producers were forbidden from selling their cotton to local consumers but were forced to sell only to agents of British companies. Also, tin smelters on Jos Plateau were prohibited from smelting tin, they could mine and sell the ore to British companies (Perchonok 1994:!1)

Table 4: Africa's exports of products by Region 2010

Countries	Agriculture		Food		Fuels and Mining		Manufacture	
	Value ($billion)	Share (%)	Value ($billion)	Share (%)	Value ($billion)	Share (%)	Value ($billion)	Share (%)
World	55	100	44	100	333	100	95	100
EU	20	37.1	17	37.9	118	35.3	40	42.3
Africa	11	19.2	9	21.3	24	7.3	23	24.0
Middle East	6	11.7	6	14.1	3	0.9	5	5.8
North America	3	5.0	2	5.3	73	22.0	9	9.1
Commonwealth of Independent states	1	2.4	1	2.9	0	0.1	0	0.2
South and Central America	0	0.9	0	0.7	11	3.3	2	2.2

Source: WTO (2011)

In 1902, the British Cotton Growers Association was formed in Nigeria to encourage cotton production for sale in Lancashire (Nnoli 1978:42) The decimation of indigenous technology and manufacture created a large market for British goods and services.Africa's exports and their destinations by volume is indicative of Africa's position in the global division of labour as commodity producer. In this vein, African countries hardly add value to their products as the productive forces remain rudimentary and mechanization/industrialization is low. This scenario encourages unequal exchange whereby the commodities exported by African countries are purchased by Europe and America at prices largely determined by these developed countries. The commodities are refined or processed into finished products that are sold to these African countries at prices determined by the industrial countries. This makes Africa dependent and vulnerable to influences and/or shocks.

Also this policy of de-industrialization reversed the roles of pre-colonial Nigerian cities from centres of production to centres of distribution and consumption of British and indeed European manufactured goods. It also reversed the development and structure of the Nigerian economy, to wit; The economy became externally oriented, dependent and underdeveloped. Rodney (1972:113) is of the view that:

> *This remarkable reversal is tied to technological advance in Europe and to stagnation of technology in Africa owing to the very trade with Europe*

The loss of credibility to manufacture in Nigeria is traceable to imperialism and neocolonialism. In the analysis of the mechanisms of neocolonialism in Africa, Eteng (1994) delineated "diplomatic mystification" and "economic strategies" which are relevant to the understanding of Nigeria's loss of credibility to manufacture.

Economic strategies: As part of the "economic strategies", Eteng identified "the creation and manipulation of scarcities through the establishment of oligopolies and monopolies." Multinational pharmaceutical companies epitomize oligopolies and/or monopolies that create and manipulate scarcities in order to justify their inflated prices of vaccines. (See table 4) It is in the tradition of the pharmaceutical multinational corporations to concentrate their research and development efforts in areas of immediate gratification and/or profit. This to a large extent explains the inability to manufacture vaccines for the diseases of the poor despite the fact that malaria and tuberculosis have taken more lives than HIV/AIDS in Africa. The role of Multinational Pharmaceutical companies in creating artificial scarcity in order to justify high prices of vaccines is substantiated by the assertion of Smith , Lipstich and Almond (2011:5) that

> *It is a reality that for the new and more complex vaccines, availability in developing countries lag substantially behind that in wealthier countries… due to the economic realities of companies needing to recoup R&D investment …. by prioritizing supply to markets that can sustain a high price.*

Table 5: Ten Largest Pharmaceutical Multinational Corporations by Revenue (2011 – 2018)

Rank	Company	2018 USD Billions	2017 USD Billions	2016 USD Billions	2015 USD Billions	2014 USD Billions	2013 USD Billions	2012 USD Billions	2011 USD Billions
1	Johnson& Johnson	20.01	76.50	71.89	70.10	74.30	71.31	67.20	65.00
2	Roche	13.74	57.37	50.11	47.70	49.86	48.53	47.80	45.21
3	Pfizer	12.90	52.54	52.82	48.85	49.61	51.88	58.99	65.26
4	Novartis	12.69	49.11	48.52	49.41	58.00	57.36	56.67	58.57
5	Sanofi	9.56	42.91	36.57	36.73	43.07	42.08	46.41	44.34
6	GlaxoSmithKline	10.04	42.05	34.79	29.84	37.96	41.61	39.93	41.39
7	Merk& Co	10.04	40.10	39.80	39.50	42.24	44.03	47.27	48.05
8	Abbvie	7.93	28.22	25.56	22.82	19.96	18.79	-	-
9	Bayer	-	27.76	25.27	24.09	25.47	24.17	24.30	23.11
10	Abbott Laboratories	7.39	27.39	20.85	20.41	20.25	21.85	39.87	38.85

Source: Adapted from wikepedia.org

These multinational pharmaceutical companies therefore prefer to manufacture in wealthy countries, thus leading to the loss of credibility to manufacture by such poor underdeveloped countries as Nigeria. In addition to this, stringent measures are put in place, couched as though they protect the interests of the underdeveloped countries but aimed at excluding these underdeveloped countries whose technologies are deemed 'suspect'. It is in this vein that Smith et al (2015:3) aver that

> *"Distribution and supply is of course dependent on licensure of vaccines in particular national markets… procurement of vaccines by United Nations Agencies requires that the product has WHO pre-qualification. This assures a consistent product quality standard for countries with less developed regulatory agencies."*

From the foregoing, the question arises whether the developed countries of Europe and America and such international agencies as WHO, UNICEF and the World Bank have a monopoly of "quality standard" and whose standard is that?

a. **Diplomatic Mystification:** According to Eteng (1994:202) "diplomatic mystification is a subtle technique whereby the national interests of Western powers are deliberately couched in absolute moralistic terms. It is basically an ideological weapon". Again, Smith et al (2015:3) apply diplomatic mystification as though they are representing the interests of the multinational pharmaceutical companies and the Western industrial companies by stating that;

> *"It is also extremely helpful to manufacturers if individual countries and organizations such as UNICEF have long term procurement arrangements based on accurate demand forecasting and multi-year budgets. With reasonable assurances or guarantees of purchase, the industry can confidently make the investment necessary to ensure long term supply and be better prepared to deal with occasional fluctuations in demand while maintaining fair pricing policies."*

On the face value, this appears fair enough to both the manufacturers and the countries that purchase the vaccines. However, such arrangements are exploitative to the underdeveloped countries because of the latter's precarious financial standing in relation to the developed countries of the World. Long term procurement agreements mean long term financial commitments by

underdeveloped countries whose debts arising from yester-years of aid are already burdensome. These underdeveloped countries can ill-afford such long-term commitments. Also, "reasonable assurance or guarantee of purchase" presupposes a stable economy. The Nigerian economy bedeviled with fluctuations in crude oil prices is far from stable. This is more worrisome in the light of the threat by the Senate of the United States of America to sanction the Organization of Petroleum Exporting Countries (OPEC) which the senate claims is a cartel.

In addition to the real and germane colonial contact situations enumerated above that have exposed the exploitative imperialistic relationships that govern vaccine production, distribution, access and uptake in Nigeria, there exists, the genuine risk of the country falling into a debt trap in the course of vaccine procurement through the agency of "development approaches in Africa which basically stress uninterrupted dependence on … foreign technology as well as an exploitative and profit yielding monopoly capital in form of "aids, technical assistance" and loans obtained through unfavourable bilateral and multilateral agreements" (Eteng 1994:205) The present Memorandum of Understanding (MOU) in Nigeria whereby all vaccines budgeted funds are released directly to UNICEF from the Central Bank of Nigeria (CBN) fits into Eteng's description of technical assistance that encourages "uninterrupted dependence on foreign technology". This type of technical assistance precludes the manufacture of vaccines in Nigeria in the foreseeable future. The risk of Nigeria falling into a debt trap arises from the fact that in spite of almost USD Seven Hundred million commitment to immunization by Gavi, the vaccine alliance, the Bill and Melinda Gates Foundation Commitment of USD1.6 billion for the purchase of vaccines in Nigeria as well as the aforementioned donations by the European Union, Nigeria's 2018 budget for the purchase of routine immunization vaccines was ₦8.89 billion Naira, doubling the 2017 budget of ₦4.1 billion naira. However allocations for polio eradication were slashed from ₦4.86 billion in 2017 to ₦1.2 billion in 2018. (www.yourbudget.com). This budgetary deficit had in the past led to the borrowing of additional funds from the World Bank at outrageous exchange rates. For instance, on May 23, 2018, the Federal Government of Nigeria (FGN) applied for the third additional credit in the amount of USD 150 million for the Nigeria Polio eradication support project at the exchange rate of NGN314.75 = USD1.00. This is in addition to two other additional credit approved by the World Bank. The first additional credit of USD200 million was approved on April 10, 2015 with a closing date of December 31, 2018 (World Bank Report No PAD2606)

3. SUGGESTIONS

In recognition of Nigeria's disadvantaged historical, socio-economic and political position as a dependent peripheral capitalist economy, this study suggests the following measures as panacea to the country's routine immunization instability.

(a) Recourse to the Lagos Plan of Action (LPA) for economic development of Africa 1980 – 2000. The LPA was conceived as a collective as a blueprint for reaching regional approach, based primarily on collective self-reliance. This was aimed at attaining self-sustaining development and the institution of a novel international economic order. At the 16th ordinary session of the Organization of African Unity (OAU) now African Union (AU) held in Monrovia, Liberia in July 1979, the "Monrovia Declaration of Commitment" of the Heads of State and Government of the OAU on the guidelines and measures for national and collective self-reliance in economic and social development was adopted.

The Short term goals of the LPA are aimed at attaining self-reliant development, reduction of dependence on the developed countries of Europe and America and self-sufficiency through

the establishment of such basic industries as food and agro-industries, chemical industries, forest industries, energy industries among others (OAU 1980:18).

It is the view of this study that a combination of these industries will enable Nigeria manufacture her vaccines and even export to other countries.

(b)Regular demography and health survey. The importance of demography and health survey in policy enunciation and implementation cannot be over-emphasized. Such surveys will effectively check the fire brigade approach to immunization and other health related issues in Nigeria.

(c)Accountability and Transparency – Perhaps as a result of Nigeria's underdevelopment, only 62% of her population is literate by 2018 records. (knoema.com.cdn.amproject.org) the implication here is that 38 percent of the population may not have access to information that will assist and/or shape their health seeking behaviour such as being disposed to presenting themselves and family members for immunization. Illiteracy in most cases breeds gullibility. This mass of illiterate people in Nigeria depends on religious and/or traditional leaders to interpret socio-political reality on their behalf. As such they can easily be misled. Also it is possible that they may misunderstand genuine efforts by governments and non-governmental organizations to assist them. It is in this vein that there have been widespread cases of resistance to immunization in Nigeria. Accountability and transparency backed by effective information dissemination in both local, foreign and sign languages is advocated to boost immunization in Nigeria.

4. CONCLUSION

This paper undertakes a critical appraisal of Routine Immunization in Nigeria. The paper has examined the epileptic progress of Routine Immunization in Nigeria in spite of concerted efforts by local and international agencies to facilitate and improve on the system. The apparent intractability of the problems faced by Routine Immunization in Nigeria reflects the country's political economy as a dependent, peripheral capitalist economy. The contradictions in Routine Immunization in Nigeria whereby much money is spend on vaccines and other infrastructure yet frequent unavailability of vaccine, vaccine storage capacity, cold chain maintenance and energy problems persist epitomize the contradictions of the dependent peripheral capitalist economy in Nigeria where abundant human and natural resources have failed to assuage abject poverty and deliver such basic necessities of life as food, shelter and health care to the people. This contradiction is blamed on the unequal relationship that exists between the developed countries of the world and their underdeveloped counterparts. This paper therefore recommends that Nigeria have recourse to the Lagos Plan of Action for the economic development of Africa. This plan which advocates self-reliance it is hoped will put Nigeria on the path of self-reliant development in the area of chemical industries and pharmaceuticals that will enhance the production of vaccines thus improving Routine Immunization in Nigeria.

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