

# A Review on Global Standard of Vaccine Management and Justification of Present Scenario of Vaccine Manufacturing in Bangladesh

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**Abstract**— Recently vaccination is extensively regarded as one of the supreme medical success of the modern civilization. With the intention of be effective at the eliminating communicable illness, vaccines might be administered to the sufficient levels of the persons in community. Amid them vaccine is proved one of most powerful in addition to effective ways of the reducing diseases. Technologies involved in the manufacturing different sorts of the vaccines may stalwartly influence vaccine price, ease of the industrial scale up, steadiness and ultimately globe wide availability. This reviews information about making vaccines available on the global scale needs use of complex the production methods, superiority control and allotment channels that guarantee products are the potent and efficient at their position of use. To ensure most favorable access in addition to uptake requires sturdy partnerships between secretive manufacturers, dictatorial authorities, national and also international public healthiness services such as WHO, TGA. The study has existing production, distribution admittance and other issues that ultimately shock on vaccine uptake. The future of the vaccine is manufacturing expertise very promising in addition to effective. So, Bangladeshi domestic company has to come ahead in the vaccine manufacturing extensively.

**Keywords**— Vaccination, Review, Management, Bangladesh.

## I. INTRODUCTION

Vaccine is the substance which is pioneer into body to thwart infection, to control disease owing to the certain pathogen. The vaccine teaches body how to the defend against pathogen by the creating an resistant response. Unlike conventional pharmaceuticals, the vaccines are biologics as they are completed from the living organisms (1). Distinctively, vaccines are the preparations of components originated from the pathogen; they may typically persuade a protective consequence through one to the three very small doses and also in range of the micrograms to the milligrams (2). The vaccines work by the stimulating human immune system to the produce antibodies devoid of the actually infecting with disease. They activate the immune scheme to the produce its individual antibodies (3). The study evaluated impact of the EPI (Expanded Programme on Immunization) involvement package, employed within existing the service-delivery arrangement and also to improve child immunization exposure at the urban slums in Dhaka, Bangladesh. It intervention examination used a preened post-test plan. The intervention wrap up was checked from the September 2006 to August 2007 in the two town slums. 99 percent of children were completely immunized after the implementation of interventions contrasted with only the 43% earlier than implementation. Antigen-wise treatment after accomplishment was also the significantly higher contrasted with earlier than implementation. The simply 1% drop-out was scrutinized after the implementation of interventions at the same time as this was 33% earlier than implementation. At the baseline, the extensively higher proportion of the children of the non-working mothers like 75% were completely immunized contrasted with the children of the working mothers like 14%. Though proportion of the completely immunized children of

the both non-working as well as working mothers was extensively higher at the end line and also completely immunized children of the working mothers (4).

## II. MATERIALS AND METHODS

In this review the entire methodology about this topic is divided into 2 basic parts. These parts are given below-

- A. Searching of the vaccine based articles from the different database such as PubMed, Google scholar: It has been searched around the 40 articles through the different journals, PubMed, Nature, Google Scholar, Science Direct which were related with the vaccine and its different effect.
- B. Selection of the vaccine based articles: Then it has been selected 40 articles which were related with the vaccine in addition to exclude the 20 duplicate articles among them. The aim of this review is
- To review on the global standard of the vaccine manufacturing.
  - To review on the FDA, MHRA, TGA, WHO regulations of the vaccine management.
  - To review on the global standard of the vaccine storage in addition to handling.
  - To review on the future of the vaccine.
  - Justification of the present scenario of the vaccine production in Bangladesh.

## III. RESULTS AND DISCUSSION

*Food as well as Drug Administration Guideline and Evaluation of the Vaccines (5):*

Vaccine-approval progression in United States is legalized by Center for the Biologics Evaluation as well as Research of US Food and Drug Administration (FDA). All the way through

life cycle of the development from the preclinical studies to subsequent to licensure and also vaccines are the subjected to the rigorous testing in addition to oversight. Producers must adhere to the good producing practices in addition to control procedures to assure the quality of the vaccines. As authorization by the Code of the Regulations, the licensed vaccines must congregate severe criteria for the safety, potency and also efficacy. The vaccine is considered one of most considerable contributions to the public health. No other therapeutic counter evaluates have been as efficient in the reducing as well as eliminating the occurrence of the infectious diseases like measles, rubella, mumps, smallpox in addition to diphtheria.

*The Vaccine Manufacturing (6):*

The Vaccine is produced in the large scale since they require to be managed to large the populations of the children and matures to be efficient as the public health tools. It large scale manufacture is a challenge. The vaccine manufacture has numerous stages. Process of the vaccine construction has following steps such as

Inactivation – It involves making of antigen preparation

Purification – Isolated antigen is purified

Formulation – The purified antigen is merged with the adjuvant, preservatives and stabilizers to the concluding vaccine preparation.

*The Vaccine Management (7):*

The vaccine wastage owing to spoilage, expiry is the concern for every single one immunization programs. The vaccine supervision has been expanded to achieve bigger standardization in management of the provincial inventories to the ensure proper storage in addition to handling of the vaccines, strengthen superiority assurance activities in addition to provide education approaches in the effort to the minimize and decrease provincially funded the vaccine wastage in addition to promote vaccine security and efficacy. Limit admittance to the vaccine delivery to the authorized personnel simply, determined by vaccine the coordinator and delegate. It will help defend the vaccine delivery by avoiding the inappropriate removal of the vaccine and inappropriate handling of the vaccine and vaccine luggage compartment units by the untrained personnel.

*The Existing Vaccines as well as New Beneficiaries (8):*

In addition to the finding new in addition to more effective methods of tackling the emerging public physical condition threats, it is considerable focal point on improving admittance to immunization for the people in the developing countries. The GAVI – a worldwide health partnership dedicated to immunization and has committed to the speeding up rollout of the new and also under-used vaccine to globe’s poorest people. Confront facing researchers, trade and also policymakers are numerous but optimism flourished. The experts accept as true immunology is on cusp of the renaissance.

*The Future of the Vaccine (9):*

Recently the development in addition to widespread adoption of the vaccines has been sleeted as the public physical condition achievement of 20th century. On the other hand, future will observe scientists spotlighting on prevention of the chronic diseases such as tuberculosis, cancer, Alzheimer’s and many other disease. The experts at Mayo Clinic as well as University of Texas Medical Branch in US have circulated the fascinating series of the papers looking backside at impact of the immunization in opposition to yellow fever in addition to smallpox as well as examining the future challenges for the 21st century researchers. The growing charge of the caring for the ageing population, somewhere non-infectious states similar to dementia will be the increasingly ordinary in the older people and has added the new dimension to search for the new vaccines.

*The Vaccine Manufactured by the Bangladeshi Companies (10):*

Generic/Common Name		Trade Name		Manufacturer
1.	Rabies vaccine	1.	Rabipur	Renata Limited
		2.	Rabivax Vaccine	Popular Pharmaceuticals Ltd.
		3.	Ravix-VC	Incepta Pharmaceuticals Ltd.
		4.	Verorab	ACI Ltd.
2.	Tetanus toxoid	1.	Vaxitet	Incepta Pharmaceuticals Ltd.
3.	Hepatitis-B	1.	Hepa-B	Incepta Pharmaceuticals Ltd.

The vaccine producing companies in the Bangladesh is too much limited. The following causes are provided below.

- ✓ Because of the strong regulations.
- ✓ Needed the huge investment.
- ✓ Needed the dedicated plant.
- ✓ Due to the patent problem.

IV. CONCLUSION

The review study has covered a range of the activities including research in addition to development, vaccine regulation, standard-setting and also quality assurance, vaccine supply as well as immunization financing and also immunization scheme strengthening. The Initiative for the Vaccine Research guides smooth the progress and also provides the vision for the worldwide vaccine in addition to immunization technology research and also development efforts. This enhancing productivity and also contributing in turn to the economic growth. Moreover the future of the vaccine is exceptionally promising in addition to effective. So our domestic companies must come forward to the increase the facility in addition to manufacturing of the vaccine. The most of the vaccine in the Bangladesh are bring in from in a foreign country so the cost of the vaccine is too much high. Thus it has to manufacture more vaccine in the Bangladesh to reduce the cost in addition to maximize the treatment of vaccination in the rural area of the Bangladesh.

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