

INTELLIVIZER

:- THE REVOLUTIONARY MASK



PROBLEM STATEMENT:-

Corona has shaken the world, bringing out tons of tears. The mutation the virus undergoes is wild and unpredictable keeping us on the edge of a string of other outbreaks. Each time we name new viruses with new cases being reported pushes us to think about preventing the spread. The names Corona, delta, NIFA, and so on testify to the human race. Considering that we must stand together, safeguard ourselves, and simultaneously show empathy for the affected, I have proposed a revolutionary mask that can minimize the suffering of the affected while preventing the spread of these airborne diseases. I aim to promote hygiene, a shield against the spread. This can reduce the awkwardness and the terrifying thought of catching a cold. This is not only for the above-mentioned purpose this can be a dream come true for people suffering from Sinusitis issues of catching colds frequently.

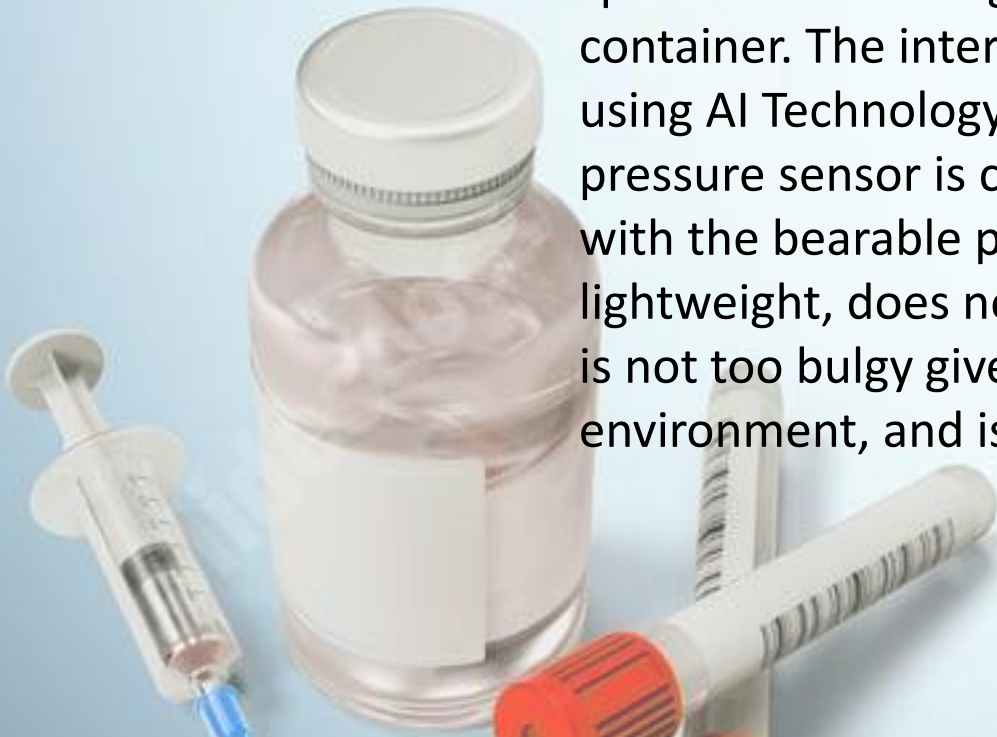
In this era where pollution and climate change have led to various mutated viruses, catching a cold has become prevalent and people suffer a lot to cope. It feels awkward and discomforting when nose blocks especially more irritating when in public places. Squeezing up not only makes us feel uncomfortable it also makes people around us feel disgusted.

Here is an incredible solution for this problem which is not only hygienic it also makes us feel comfortable and allows us to concentrate on our work peacefully. This is highly hygienic as no direct contact with the mucus is involved thus preventing the spread of airborne diseases.



Let's put a full stop to running nose-related problems

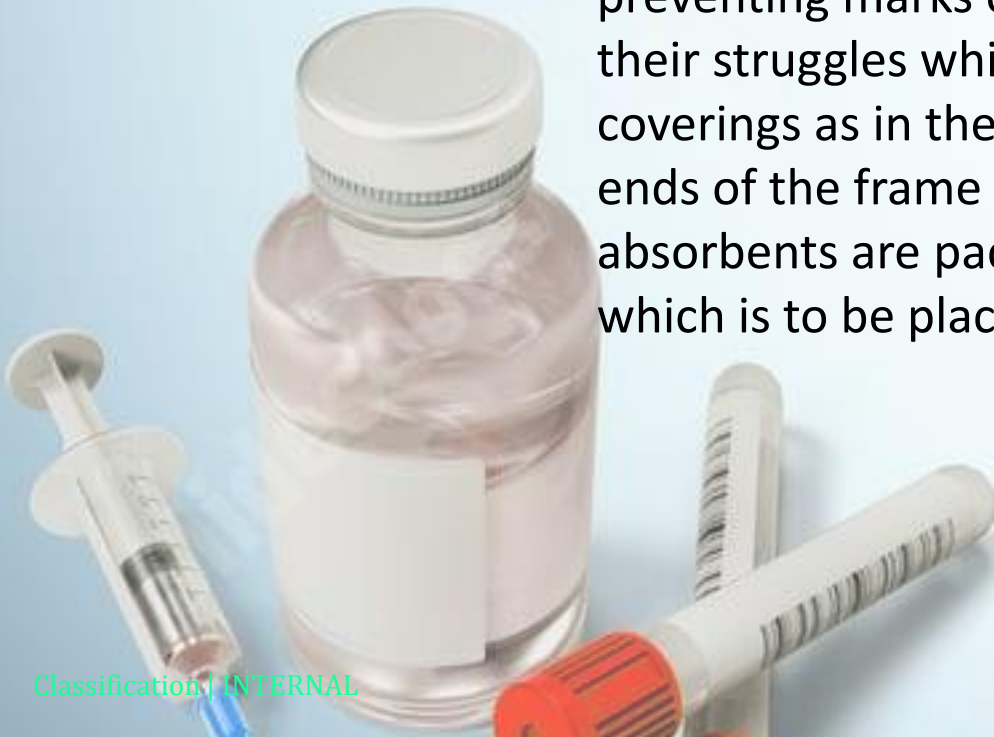
A mask can act as both a shield from external surroundings and suction equipment to remove the blockage and store the mucus in a disposable eco-friendly cartridge with disinfectant. The used cartridge can be disposed of in a specially designed UVC-enabled box. UVC rays deactivate the virus and the cartridge can normally be disposed of to prevent the spread. The cartridge absorbent can be replaced again inside the suction container. The interesting part is that Intellivizer can detect nose blockage using AI Technology. This can be used for infants and old. Data from the pressure sensor is collected and monitored by AI which will be compared with the bearable pressure therefore safe for infants. The key features are lightweight, does not leave an impression on the skin as normal masks do, is not too bulgy gives a decent look, is clean and hygienic, safe for the environment, and is considerably economical.



DESIGN :-

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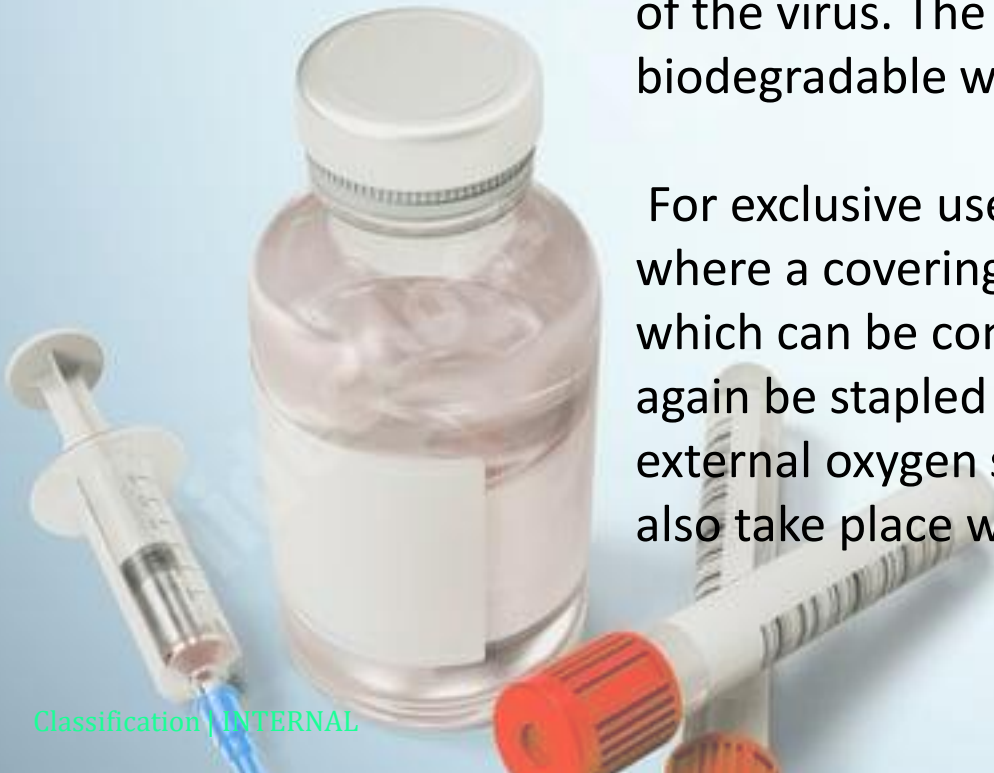
A solid frame that covers the nose and side cheeks. The side of the frame near the two cheeks is bulged out which contains the suction device with the cartridges. The slim outline covering the nose and mouth on the other end is embedded with a pressure sensor near the nose and nose pad. There will be an adjustable-size belt to buckle around the ear made of silicone at the ends of the frame. The entire frame will be made of silicone thus making it flexible, preventing marks on the skin which offers more comfort to the customer easing their struggles while wearing the mask for longer. A pack of 4 layered protection coverings as in the N95 mask will be provided, which is to be stapled to all the ends of the frame and should be replaced quite often. cartridges that act as absorbents are packed with disinfectants and will be provided as a packet, which is to be placed inside the suction tube container.



DESIGN:-

The suction tube container will be a cylindrical one where one end will be capped to the tubes(it is detachable for easy cleaning purposes) while the other end will have a button that will act as a piston to push the cartridge in and out without touching them by hand. Considering safe disposal as a key criterion a box that produces UVC rays is provided along with this kit. As science proves UVC rays are effective In deactivating viruses this will prevent the spread of the virus. The cartridge after treating with UVC rays can be disposed of under biodegradable waste as it is made of cellulose.

For exclusive use in Hospitals, an additional yet optional feature is provided where a covering is made of softer silicone with a nebulizer mask attached to it which can be connected to the oxygen tube through the slot, this covering can again be stapled at the corners to the frame. It is specially designed to allow external oxygen supply to be given at the same time the suction process can also take place when the nose is blocked.



How it works:-

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The pressure sensor detects the pressure accumulated in the nostrils. Which is being monitored by AI. When the pressure is high the suction tubes protrude and the caps at their ends fit the nostrils minimal suction develops when we blow our nose, and the mucus collected will be locked by the cartridge absorbents. This will be discarded after treating with high-frequency UVC rays.

For hospital use, the covering made of silicone attached to the specially designed nebulizer mask will be available in addition where the covering can be connected to the oxygen tube, again when the pressure is detected the suction tubes protrude into the mask via a special provision in the attached nebulizer mask. The suction is provided keeping in mind that no internal structures of the nose will be disrupted.

Suction is a most common medical procedure done in case of severe colds like mucus suction, even for infants as per tradition they suck out colds via mouth from the infant's nose.



Raw Material:

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*Mask frame & buckle belt:- either TPE or Polyurethane (PU) or Silicone Rubber (Platinum-Cured)

[all these are good options to prevent long-lasting scars and irritation- budget factor should be kept in mind to make it more affordable.]

*Suction container: Polycarbonate (PC)

* Suction tubes and caps:-Polyvinyl Chloride (PVC)-soft

*covering- normal use(to be clipped at ends):-

>>Outer Layer: Non-woven polypropylene fabric provides moisture resistance and protection against larger particles.

>>Middle Layer 1: Melt-blown polypropylene serves as a primary filtration layer to trap fine particles.

>>Middle Layer 2: Another layer of melt-blown polypropylene or a similar filtration material enhances the mask's filtration efficiency.

>>Inner Layer: Soft non-woven polypropylene or polyester fabric, designed for comfort and moisture absorption against the skin.

*covering attached with nebulizer mask:- Polyvinyl Chloride (PVC) /Silicone / Thermoplastic Elastomers (TPE)

*UVC Sterilizing Lamps

*cartridge absorbents with disinfectant: cellulose absorbents packed with disinfectants



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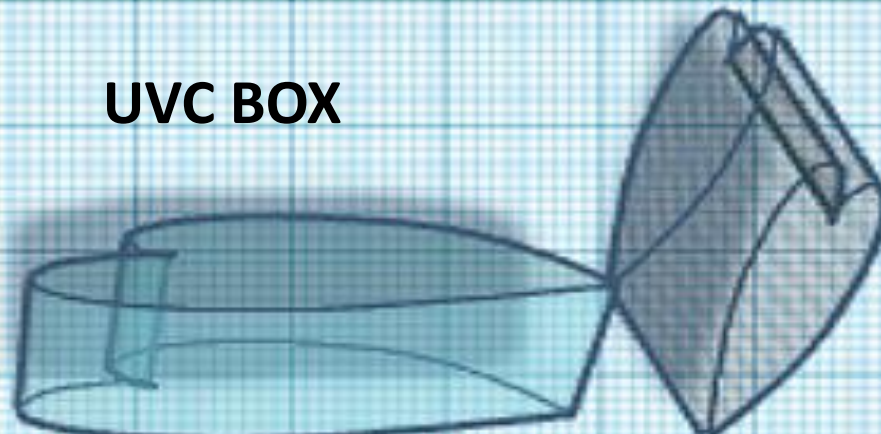
Suction container



MASK- inner view



UVC BOX



cartridges

Budget:- (Tentative)

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- *TPE for mark frame- Rs 5(for 10g)
- *pressure sensor:-Rs.30
- *suction devices- Rs. 150-200
- *suction tube and container(5 psc)- Rs 70
- *trained AI model(hardware)- Rs. 150
- *10 pieces of N95 mask- 4layers-Rs 100
- *50 pads- cellulose disinfectant packed absorbents-Rs.250
- *UVC box along with UVC lamp cost- Rs 350-400
- *other miscellaneous costs per mask-Rs 200(marketing, transportation, etc...)
- *if required covering attached to a nebulizer mask- Rs.40

Approximate Budget (can vary widely based on many factors. This is just a rough estimation):-

Production cost(tentatively)-Rs 1200

MRP- Rs 3000

***NOTE: All the estimates mentioned above are tentative and can vary, mass production may decrease the cost of production.**

Durability is expected to be about 1.5 years- 2 years after which the suction device alone can be replaced and used for another 2-3 years

Technologies Used:-

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- pressure sensor device
- AI (and data management if necessary)is used to monitor the pressure constricted in the nostrils
- Machine learning and AI are used to make the suction device smart such that the two-nostril-sized suction cup automatically goes into the nostrils and sucks mucus from the nostril on detection of nose blockage



Statistics:-

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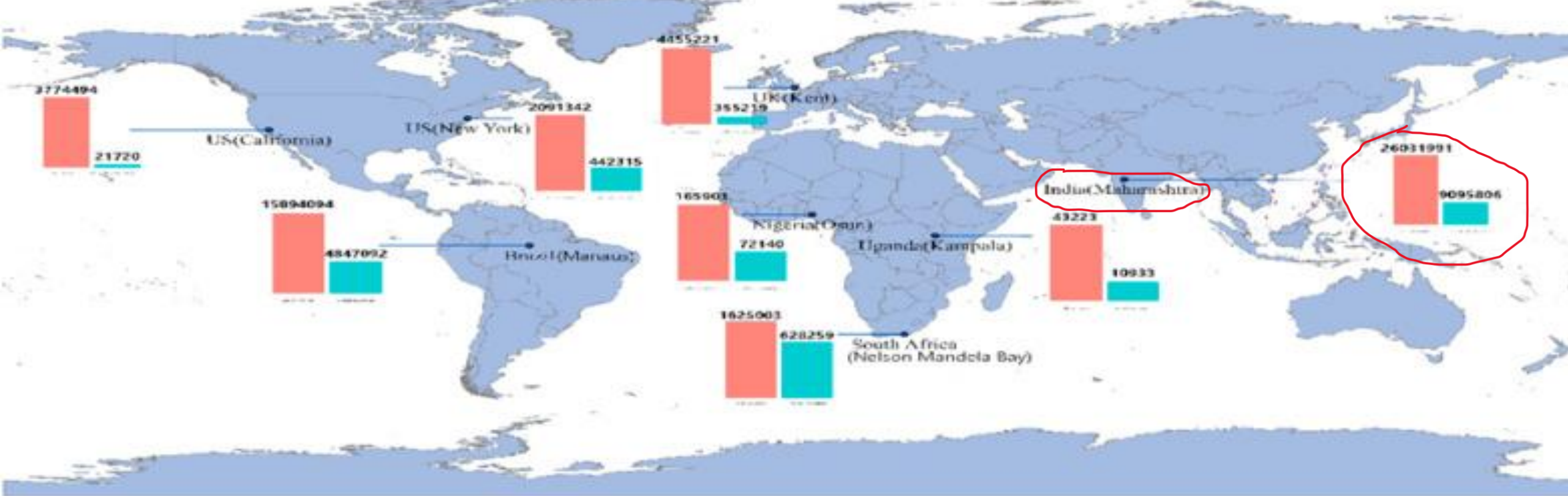
The alpha variant prevalence in the UK rose from 0.1% (October 2020) to 49.7% (late November 2020).

In early 2020, the reproduction number doubled in Italy, Spain, France, and Germany.

By February 2021, alpha accounted for 95% of COVID-19 infections in England.

beta lineage was found to infect 76% of cases imported from Europe to Brazil early in the pandemic.

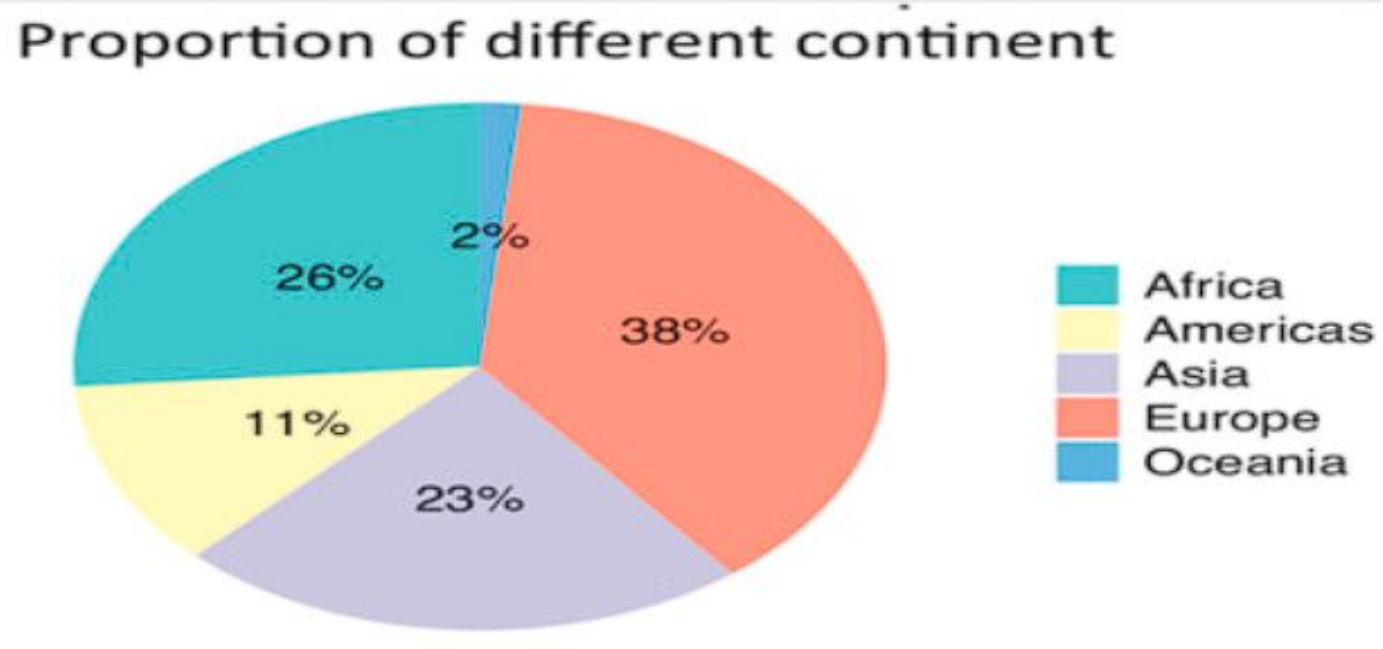
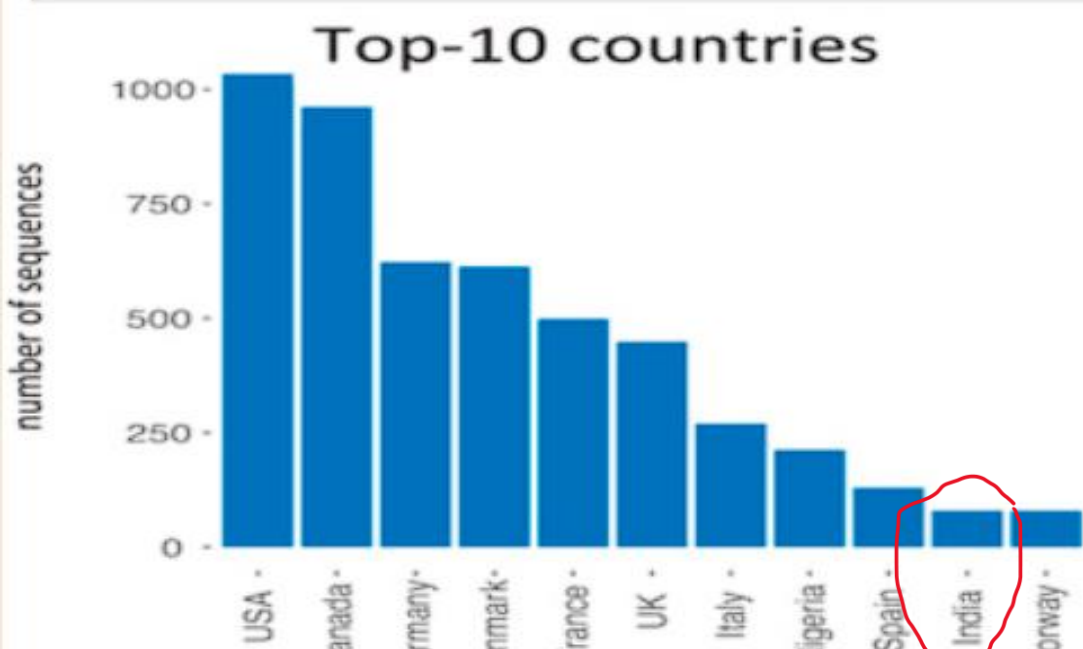
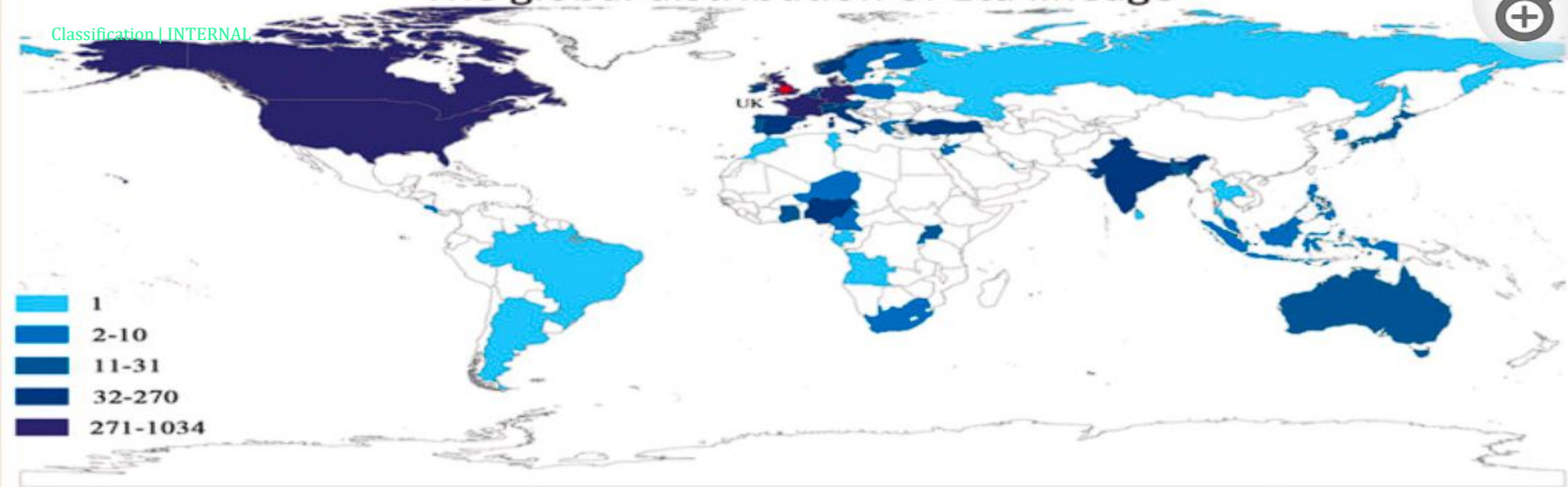




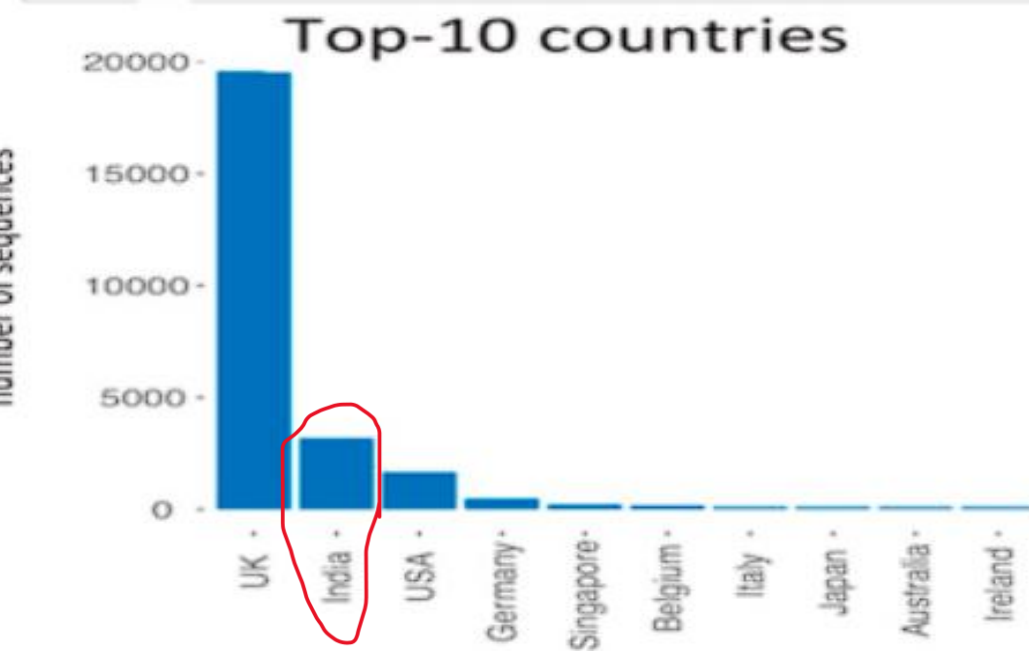
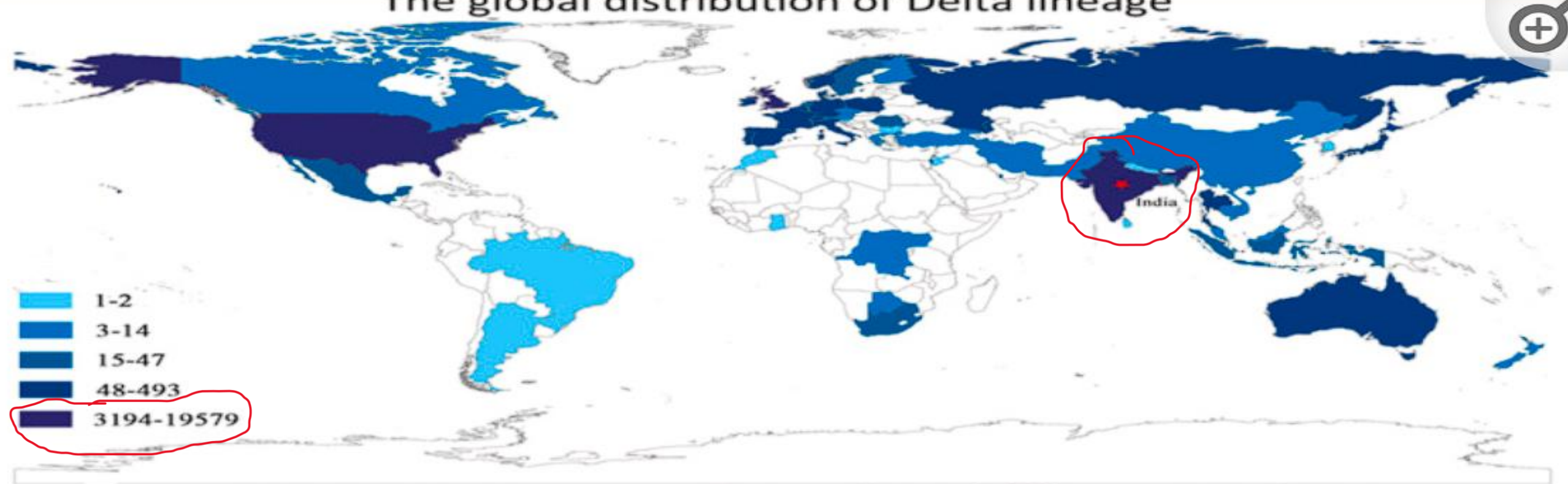
Lineages

California	Kent	Manaus	New York
Kampala	Maharashtra	Nelson Mandela Bay	Osun

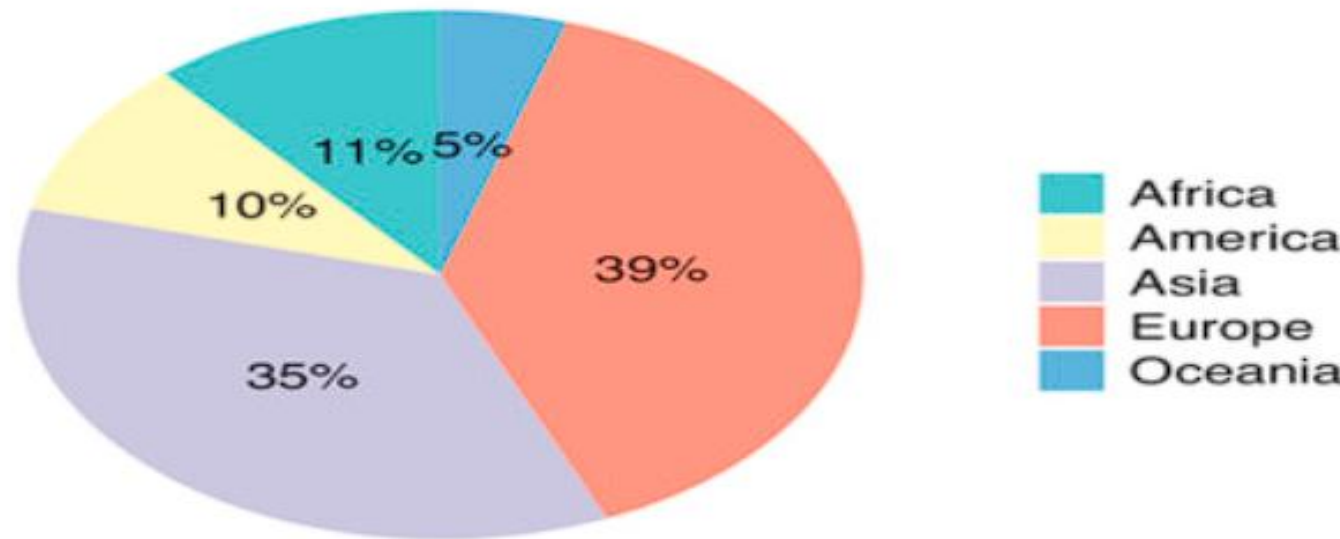


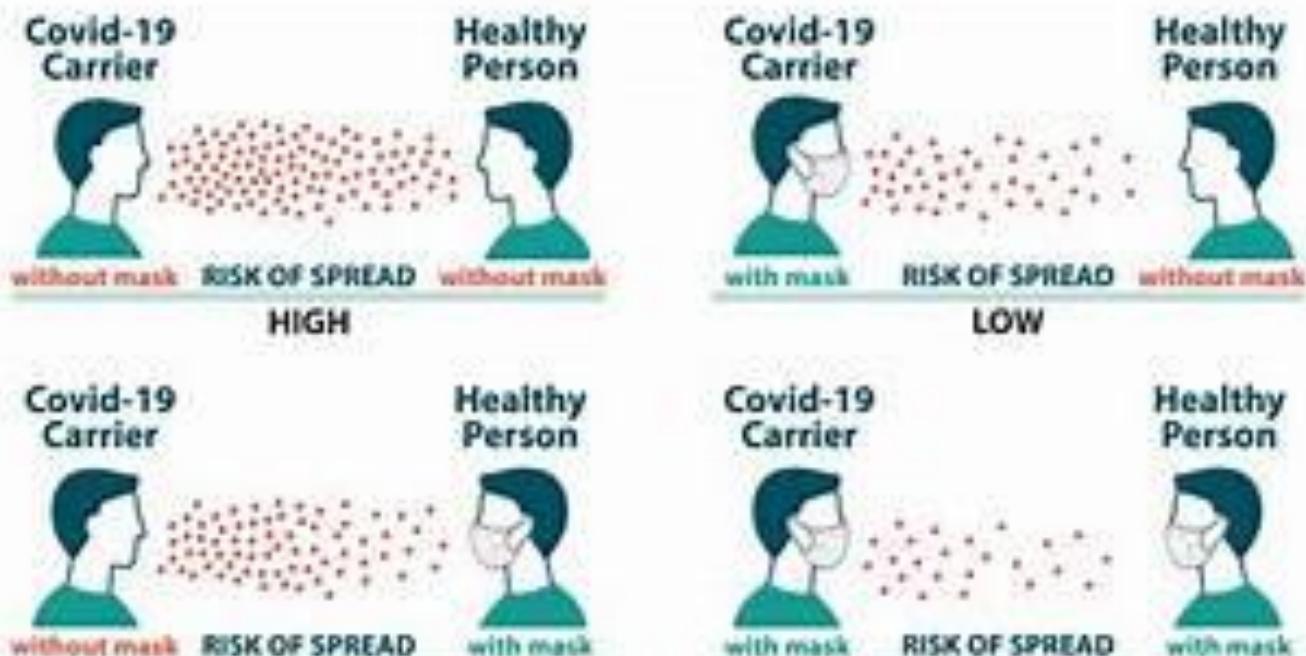


The global distribution of Delta lineage

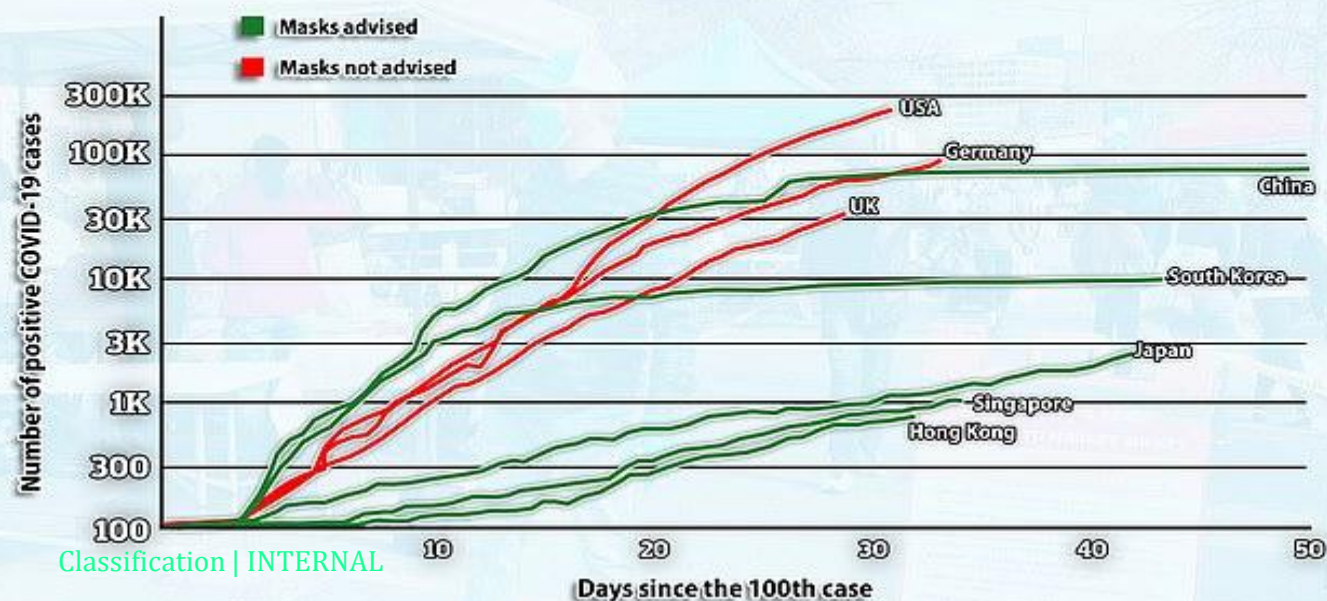


Proportion of different continent

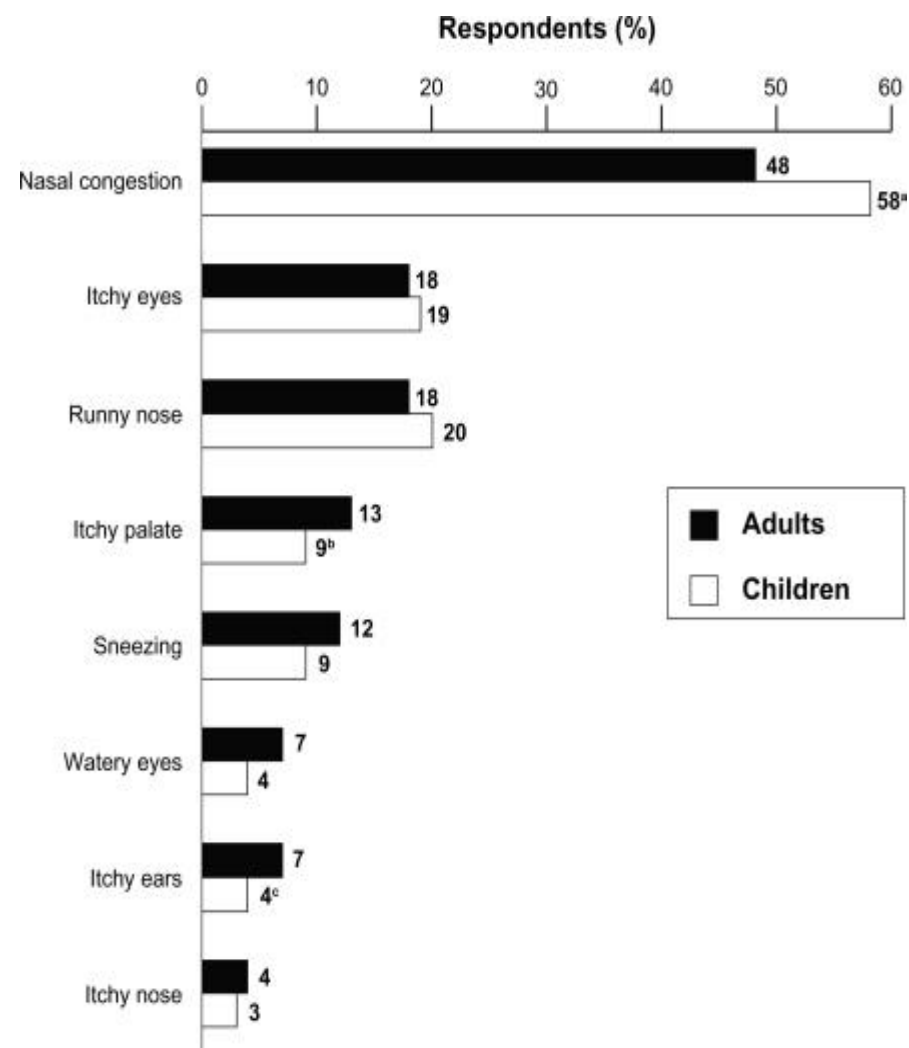




POSITIVE CORONAVIRUS CASES IN COUNTRIES WHERE PUBLIC IS ADVISED TO WEAR MASKS AND WHERE THEY ARE NOT



Problems related to Nasal congestion due to allergies-sinusitis



Epidemiology of Nasal Congestion(sinusitis-related only)

The epidemiology of nasal congestion reveals significant prevalence and associated burdens across various populations and conditions. Allergic rhinitis affects approximately 10% to 20% of the global population, with prevalence rates in the United States ranging from 9% to 16%. Notably, 80% of individuals with allergic rhinitis develop symptoms before the age of 20, and this condition often becomes chronic, with only 10% to 20% of affected children experiencing symptom resolution within a decade. Surveys indicate that nasal congestion is reported by 60% of allergy sufferers in the U.S. and is identified as the most bothersome symptom by 48% of adults



In Europe, the prevalence of allergic rhinitis varies from 17% to 29%, with 59% of diagnosed patients reporting nasal congestion. Additionally, rhinosinusitis, **affecting 1 in 6 adults in the U.S. shows nasal obstruction** in up to 70% of cases. Economic burdens are considerable, with allergic rhinitis costing around \$4 billion in direct treatment costs and contributing to millions of missed work and school days. Overall, the high prevalence of nasal congestion and its associated conditions underscores the urgent need for effective treatment options to alleviate its significant impact on quality of life.

The above data is related to sinusitis and allergy-related nasal congestions alone apart from this nasal congestions can be caused by other factors such as the common cold, viral infections like flu, COVID, etc

STATISTICAL DATA ON PEOPLE WHO SUFFERED DUE TO NOSE BLOCKAGE:-

Anatomic Contributors to Nasal Airway Obstruction (NAO):

Among patients surveyed, the prevalence of anatomic contributors to NAO was as follows:

Nasal Valve Collapse (NVC): 67%

Septal Deviation: 76%

Inferior Turbinate Hypertrophy: 72%

Approximately 64% of patients had severe or extreme NOSE scores (≥ 55), indicating likely candidates for intervention¹.

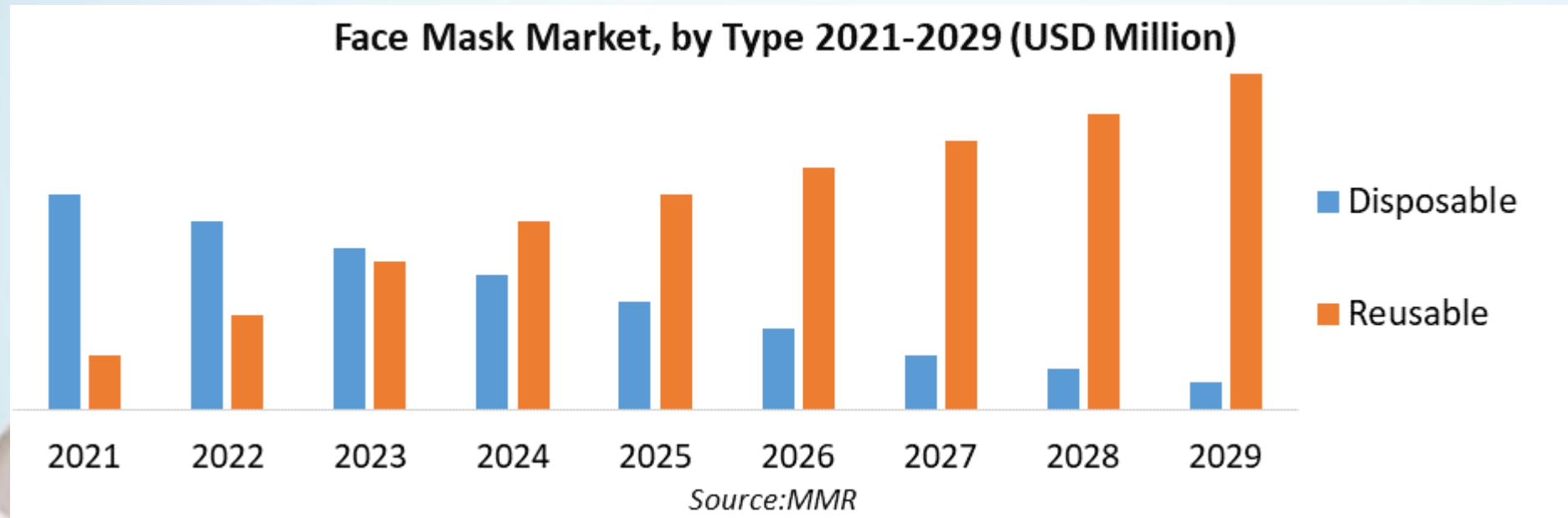
Allergic Rhinitis:

The overall prevalence of rhinoconjunctivitis (including nasal symptoms) in children aged 6 to 7 years was 8.5%, and in children aged 13 to 14 years, it was 14.6%².

Severity of Nasal Airway Obstruction:

Regardless of visit reason, 37.4% of surveyed patients had severe or extreme NAO symptoms³.

Statistics (Business view)

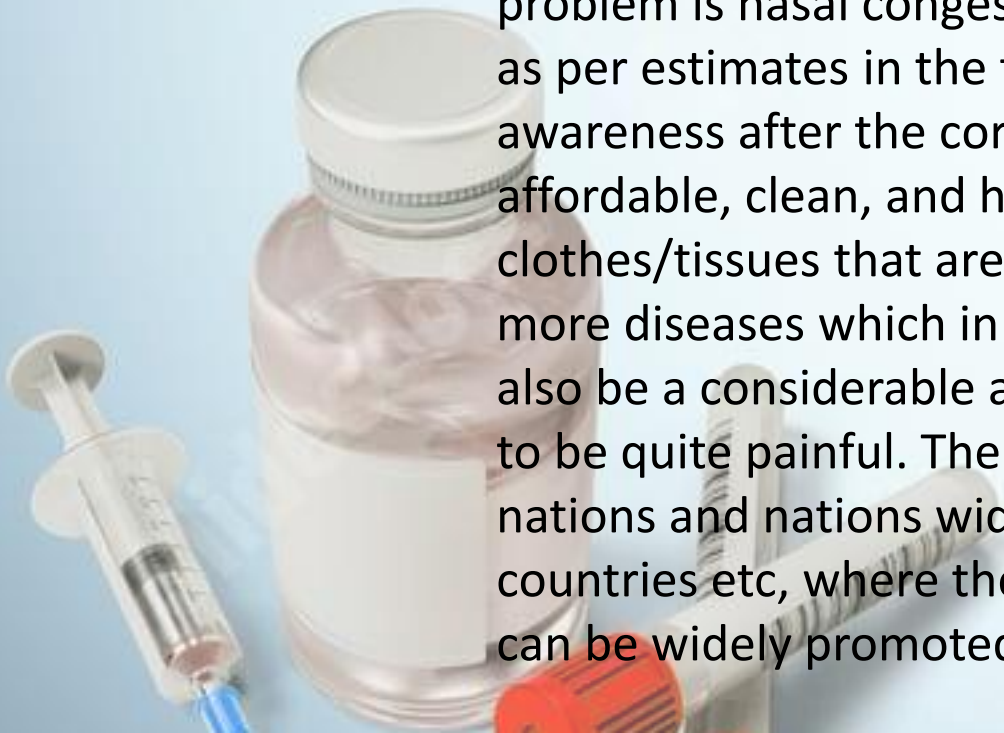


Estimate by

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Scope of product in hospitals and Scope in Export

The above Statistics showcase the importance of face masks due to the increase in the spread of new variants of the coronavirus, and how India comes under the top 10 countries where new variants have been known to spread across, reporting cases of spread from the US, UK, and other developed nations which also come under top 10 countries of spread. It is also shown above how wearing a mask reduces the chances of the spread, apart from this data show how common sinusitis is and the most faced problem is nasal congestion. From a business perspective mask businesses tend to grow as per estimates in the future. The developing mindset of health, well-being, and caution awareness after the coronavirus outbreak will aid in capturing the market, as it is also affordable, clean, and hygienic. This is a hygienic alternative to blowing the nose with clothes/tissues that are washed and reused/ disposed of in the open as this only triggers more diseases which in turn increases the severity and also disposal is not safe. This can also be a considerable alternative to the medical mucus suction method which turns out to be quite painful. The product is estimated to do well when exported to developed nations and nations widely affected by coronavirus like the US, UK, and European countries etc, where there is the chance of the government promoting the product. This can be widely promoted and used by hospitals as this is very helpful in many cases.



This revolutionary mask will be preferred all over the globe, with the center of the market being hospitals. Exporting to various countries will enable us to sell at a better price stacking up profit rates. This helps our Nation also to bring in foreign exchange. This can get huge recognition from various govt because of the hygiene factor, and can also get recognition from the WHO. We Aim to sell hygiene and comfort at an affordable cost aiming for tackling the spread of airborne diseases. This can throw a spotlight on India's efforts to tackle a very important global issue and can get recognition all over.

Advantages:

- The market size is not limited by a specific age group of target customers
- The whole globe is the market
- Demand in Hospitals makes it the potential to be the main source of consumption
- Demand due to new variant spreads and government laws across the globe to regulate spread and prevent other new variants from entering the country
- there is a Demand in airports across the globe

Target customers:-

->Any age group(2yr-88yrs)

Marketing :

Marketing can be done via social media, mass media, below-the-line activity, promotion by hospitals clinics, and pharmacies

Competitor analysis:-

As this is a completely new and innovative product there is no existing competitor in the market.

This is completely different from normal masks as both cater to different uses and problem statements.

This can be an alternative to hankies and can be considered an alternative for medical procedures like mucus suction when less severe.



Swot Analysis:-

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Strength: Demand/ usability is high. No specific target age group, affordable price

Weakness: Bringing in awareness

Opportunity: High demand in hospitals as it can be considered a considerable alternative to painful mucus suction, The mask can be developed to ease breathing by supplying small amounts of oxygen while still keeping the design simple lightweight, and comfortable to wear.

Threats: It is the equal responsibility of the users to put the used cartridge into the UVC box before disposal to minimize contingency.



Things that can be manufactured:

suction tubes, plastic frames, cellulose absorbents packed with disinfectants, UVC box, nebulizer cover, and integration of all material

Things to be outsourced:

mask material
(cut and made fit to mask), plastic material, and other materials

Profit:

Being the first mover We have an advantage to decide upon the profit of the organization. However, recommended for a sustainable profit as it servers to the social cause and income group.



