***A TERM PAPER ON THE DEVELOPMENT OF ENVIRONMENTAL HEALTH ENGINEERING FACILITIES, EQUIPMENTS , SENSORS AND PUBLIC HEALTH SYSTEM FOR TACKLING COVID-19 PANDEMIC***

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***INTRODUCTION***

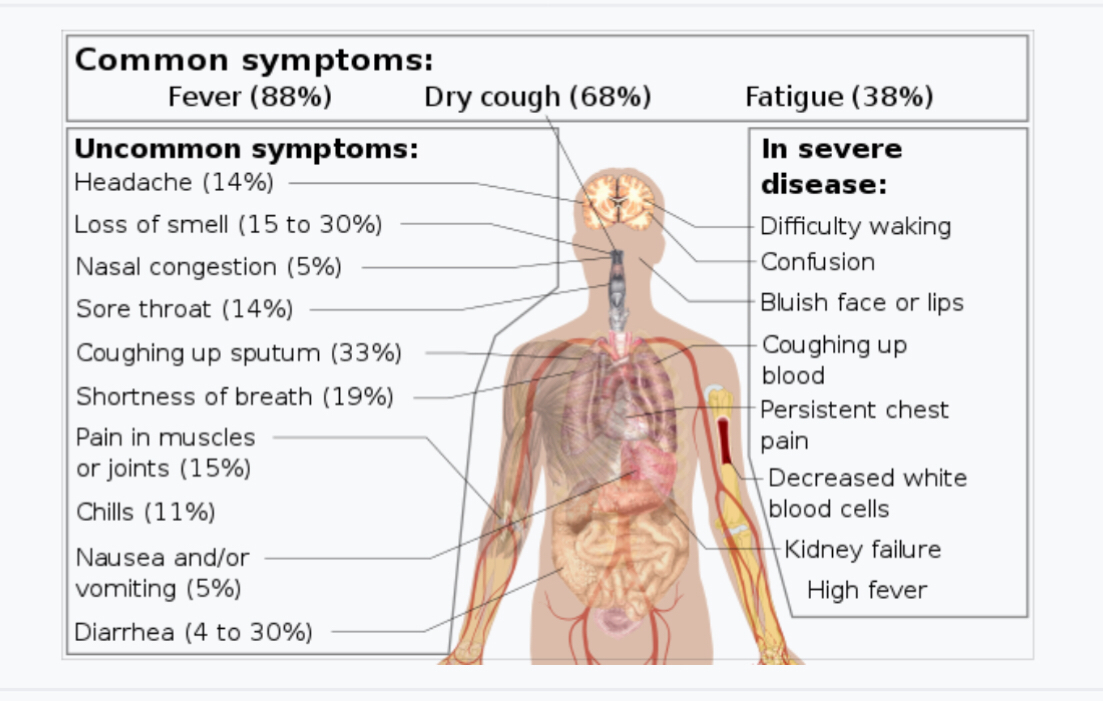
What is ***COVID-19?***

Coronavirus disease 2019 (***COVID-19***) is an infectious disease caused by ***severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2).*** The virus was first identified in **WUHAN,** the capital of China’s **HUBEI** province, and has since spread globally, resulting in the ongoing 2019-20 corona virus pandemic. Common symptoms include fever, cough and shortness of breath. Other symptoms may include fatigue, muscle pain, diarrhea, sore throat, loss of smell and abdominal pain. The time from exposure to onset of symptoms is typically around five days.

***Other names for COVID-19***

1. Corona virus
2. COVID
3. 2019-nCoV acute respiratory disease
4. Novel corona virus pneumonia
5. Wuhan pneumonia.

The virus is mainly spread between people in close contact, often via small droplets produced during ***coughing***, ***sneezing***, or even ***talking.*** While these droplets are produced when breathing out, they usually fall to the ground or surfaces rather than being infectious over large distances. People may also become infected by touching a contaminated surface and then their face. The virus can survive for up to 72 hours and is most contagious during the first three days after onset of symptoms, although spread may be possible before symptoms, although spread may be possible before symptoms appear and in later stages of the diseases.

Figure 1-symptoms of COVID-19

*“The best defense against any outbreak is a strong health system,” stressed WHO Director-General Tedros Adhanom Ghebreyesus. “COVID-19 is revealing how fragile many of the world’s health systems and services are, forcing countries to make difficult choices on how to best meet the needs of their people.”*

To help countries navigate through these challenges, the World Health Organization (WHO) has updated operational planning guidelines in balancing the demands of responding directly to COVID-19 while maintaining essential health service delivery, and mitigating the risk of system collapse. This includes a set of targeted immediate actions that countries should consider at national, regional, and local level to reorganize and maintain access to high-quality essential health services for all.

Countries should identify essential services that will be prioritized in their efforts to maintain continuity of service delivery and make strategic shifts to ensure that increasingly limited resources provide maximum benefit for the population. They also need to comply with the highest standard in precautions, especially in hygiene practices, and the provision of adequate supplies including personal protective equipment This requires robust planning and coordinated actions between governments and health facilities and their managers.

Some examples of essential services include: routine vaccination; reproductive health services including care during pregnancy and childbirth; care of young infants and older adults; management of mental health conditions as well as noncommunicable diseases and infectious diseases like HIV, malaria and TB; critical inpatient therapies; management of emergency health conditions; auxiliary services like basic diagnostic imaging, laboratory services, and blood bank services, among others.

Well-organized and prepared health systems can continue to provide equitable access to essential service delivery throughout an emergency, limiting direct mortality and avoiding increased indirect mortality.

The guidelines stress the importance of keeping up-to-date information. This requires frequent transparent communications with the public, and strong community engagements so the public can maintain trust in the system to safely meet their essential needs and to control infection risk in health facilities. This will help ensure that people continue to seek care when appropriate, and adhere to public health advice.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Total cases | New cases | Total deaths | New deaths | Total recovered | Active cases | Serious/Critical | Total cases/1M pop | Death cases/1M pop | Total tests | Tests/1M pop |
| World | 1,854,214 | 1,957 | 114,293 | 99 | 428,082 | 1,311,839 | 50,852 | 238 | 14.7 |  |  |
| USA | 560,433 | 133 | 22,115 | 10 | 32,634 | 505,684 | 11,766 | 1,693 | 67 | 2,833,112 | 8,559 |
| Spain | 166,831 |  | 17,209 |  | 62,391 | 87,231 | 7,371 | 3,568 | 368 | 600,000 | 12,833 |
| Italy | 156,363 |  | 19,899 |  | 34,211 | 102,253 | 3,343 | 2,586 | 329 | 1,010,193 | 16,708 |
| France | 132,591 |  | 14,393 |  | 27,186 | 91,012 | 6,845 | 2,031 | 221 | 333,807 | 5,114 |
| Germany | 127,854 |  | 3,022 |  | 64,300 | 60,532 | 4,895 | 1,526 | 36 | 1,317,887 | 15,730 |
| UK | 84,279 |  | 10,612 |  | N/A | 73,323 | 1,559 | 1,241 | 156 | 352,974 | 5,200 |
| China | 82,160 | 108 | 3,341 | 2 | 77,663 | 1,156 | 121 | 57 | 2 |  |  |
| Iran | 71,686 |  | 4,474 |  | 43,894 | 23,318 | 3,930 | 853 | 53 | 263,388 | 3,136 |
| Turkey | 56,956 |  | 1,198 |  | 3,446 | 52,312 | 1,665 | 675 | 14 | 376,100 | 4,459 |
| Belgium | 29,647 |  | 3,600 |  | 6,463 | 19,584 | 1,223 | 2,558 | 311 | 102,151 | 8,814 |
| Netherlands | 25,587 |  | 2,737 |  | 250 | 22,600 | 1,384 | 1,493 | 160 | 101,534 | 5,926 |
| Switzerland | 25,415 |  | 1,106 |  | 12,700 | 11,609 | 386 | 2,937 | 128 | 193,800 | 22,393 |
| Canada | 24,383 |  | 717 |  | 7,172 | 16,494 | 557 | 646 | 19 | 422,200 | 11,186 |
| Brazil | 22,318 | 126 | 1,230 | 7 | 173 | 20,915 | 296 | 105 | 6 | 62,985 | 296 |
| Portugal | 16,585 |  | 504 |  | 277 | 15,804 | 228 | 1,627 | 49 | 163,616 | 16,046 |
| Russia | 15,770 |  | 130 |  | 1,291 | 14,349 | 8 | 108 | 0.9 | 1,200,000 | 8,223 |
| Austria | 13,945 |  | 350 |  | 6,987 | 6,608 | 243 | 1,548 | 39 | 144,877 | 16,086 |
| Israel | 11,235 | 90 | 110 | 7 | 1,689 | 9,436 | 181 | 1,298 | 13 | 117,339 | 13,557 |
| S. Korea | 10,537 | 25 | 217 | 3 | 7,447 | 2,873 | 55 | 206 | 4 | 514,621 | 10,038 |
| Sweden | 10,483 |  | 899 |  | 381 | 9,203 | 839 | 1,038 | 89 | 54,700 | 5,416 |
| Ireland | 9,655 |  | 334 |  | 25 | 9,296 | 194 | 1,955 | 68 | 53,000 | 10,734 |
| India | 9,240 | 35 | 331 |  | 1,096 | 7,813 |  | 7 | 0.2 | 189,111 | 137 |
| Peru | 7,519 |  | 193 |  | 1,798 | 5,528 | 134 | 228 | 6 | 76,506 | 2,320 |
| Ecuador | 7,466 |  | 333 |  | 501 | 6,632 | 184 | 423 | 19 | 23,635 | 1,340 |
| Japan | 7,370 |  | 123 |  | 784 | 6,463 | 129 | 58 | 1 | 77,381 | 612 |
| Chile | 7,213 |  | 80 |  | 2,059 | 5,074 | 387 | 377 | 4 | 82,271 | 4,304 |
| Poland | 6,674 |  | 232 |  | 439 | 6,003 | 160 | 176 | 6 | 138,007 | 3,646 |
| Norway | 6,525 |  | 128 |  | 32 | 6,365 | 59 | 1,204 | 24 | 126,486 | 23,332 |
| Australia | 6,359 | 46 | 61 | 2 | 3,494 | 2,804 | 79 | 249 | 2 | 362,136 | 14,201 |
| Romania | 6,300 |  | 316 |  | 852 | 5,132 | 204 | 327 | 16 | 62,328 | 3,240 |
| Denmark | 6,174 |  | 273 |  | 2,123 | 3,778 | 104 | 1,066 | 47 | 70,125 | 12,107 |
| Czechia | 5,991 |  | 139 | 1 | 467 | 5,385 | 87 | 559 | 13 | 128,359 | 11,986 |
| Pakistan | 5,374 | 144 | 93 | 2 | 1,095 | 4,186 | 44 | 24 | 0.4 | 65,114 | 295 |
| Malaysia | 4,683 |  | 76 |  | 2,108 | 2,499 | 66 | 145 | 2 | 77,491 | 2,394 |
| Mexico | 4,661 | 442 | 296 | 23 | 1,843 | 2,522 | 185 | 36 | 2 | 36,594 | 284 |
| Philippines | 4,648 |  | 297 |  | 197 | 4,154 | 1 | 42 | 3 | 33,814 | 309 |
| Saudi Arabia | 4,462 |  | 59 |  | 761 | 3,642 | 67 | 128 | 2 | 115,585 | 3,320 |
| Indonesia | 4,241 |  | 373 |  | 359 | 3,509 |  | 16 | 1 | 27,075 | 99 |
| UAE | 4,123 |  | 22 |  | 680 | 3,421 | 1 | 417 | 2 | 648,195 | 65,538 |
| Serbia | 3,630 |  | 80 |  | 400 | 3,150 | 146 | 415 | 9 | 18,312 | 2,096 |
| Panama | 3,400 |  | 87 |  | 29 | 3,284 | 106 | 788 | 20 | 15,147 | 3,511 |
| Luxembourg | 3,281 |  | 66 |  | 500 | 2,715 | 30 | 5,241 | 105 | 29,165 | 46,591 |
| Ukraine | 3,102 | 325 | 93 | 10 | 97 | 2,912 | 45 | 71 | 2 | 30,314 | 693 |
| Qatar | 2,979 |  | 7 |  | 275 | 2,697 | 37 | 1,034 | 2 | 49,102 | 17,043 |
| Finland | 2,974 |  | 56 |  | 300 | 2,618 | 80 | 537 | 10 | 45,019 | 8,125 |
| Dominican Republic | 2,967 |  | 173 |  | 131 | 2,663 | 147 | 274 | 16 | 9,275 | 855 |
| Colombia | 2,776 |  | 109 |  | 270 | 2,397 | 92 | 55 | 2 | 41,765 | 821 |
| Thailand | 2,579 | 28 | 40 | 2 | 1,288 | 1,251 | 61 | 37 | 0.6 | 71,860 | 1,030 |
| Belarus | 2,578 |  | 26 |  | 203 | 2,349 | 50 | 273 | 3 | 64,000 | 6,773 |
| Singapore | 2,532 |  | 8 |  | 560 | 1,964 | 31 | 433 | 1 | 72,680 | 12,423 |
| Argentina | 2,208 | 66 | 95 | 5 | 468 | 1,645 | 83 | 49 | 2 | 19,758 | 437 |
| South Africa | 2,173 |  | 25 |  | 410 | 1,738 | 7 | 37 | 0.4 | 80,085 | 1,350 |
| Greece | 2,114 |  | 98 |  | 269 | 1,747 | 76 | 203 | 9 | 42,261 | 4,055 |
| Egypt | 2,065 |  | 159 |  | 589 | 1,317 |  | 20 | 2 | 25,000 | 244 |
| Algeria | 1,914 |  | 293 |  | 591 | 1,030 | 60 | 44 | 7 | 3,359 | 77 |
| Iceland | 1,701 |  | 8 |  | 889 | 804 | 10 | 4,985 | 23 | 35,253 | 103,308 |
| Moldova | 1,662 |  | 33 | 2 | 107 | 1,522 | 80 | 412 | 8 | 6,271 | 1,555 |
| Morocco | 1,661 |  | 118 |  | 177 | 1,366 | 1 | 45 | 3 | 8,473 | 230 |
| Croatia | 1,600 |  | 23 |  | 373 | 1,204 | 34 | 390 | 6 | 16,381 | 3,990 |
| Hungary | 1,458 | 48 | 109 | 10 | 120 | 1,229 | 58 | 151 | 11 | 34,819 | 3,604 |
| Iraq | 1,352 |  | 76 |  | 640 | 636 |  | 34 | 2 | 35,415 | 880 |
| New Zealand | 1,349 | 19 | 5 | 1 | 546 | 798 | 4 | 280 | 1 | 62,827 | 13,029 |
| Estonia | 1,332 | 23 | 27 | 2 | 102 | 1,203 | 9 | 1,004 | 20 | 30,764 | 23,191 |
| Kuwait | 1,234 |  | 1 |  | 142 | 1,091 | 29 | 289 | 0.2 |  |  |
| Slovenia | 1,205 |  | 53 |  | 150 | 1,002 | 35 | 580 | 25 | 34,851 | 16,764 |
| Bahrain | 1,136 |  | 6 |  | 558 | 572 | 4 | 668 | 4 | 63,973 | 37,596 |
| Azerbaijan | 1,098 |  | 11 |  | 250 | 837 | 27 | 108 | 1 | 66,677 | 6,576 |
| Lithuania | 1,062 | 9 | 24 | 1 | 101 | 937 | 14 | 390 | 9 | 41,503 | 15,246 |
| Bosnia and Herzegovina | 1,018 | 9 | 39 |  | 206 | 773 | 4 | 310 | 12 | 10,975 | 3,345 |
| Armenia | 1,013 |  | 13 |  | 197 | 803 | 30 | 342 | 4 | 7,164 | 2,418 |
| Hong Kong | 1,005 |  | 4 |  | 360 | 641 | 13 | 134 | 0.5 | 96,709 | 12,900 |
| Kazakhstan | 973 | 22 | 11 | 1 | 99 | 863 | 21 | 52 | 0.6 | 69,304 | 3,691 |
| Uzbekistan | 896 | 31 | 4 |  | 66 | 826 | 8 | 27 | 0.1 | 70,000 | 2,091 |
| North Macedonia | 828 |  | 34 |  | 41 | 753 | 15 | 397 | 16 | 8,057 | 3,867 |
| Cameroon | 820 |  | 12 |  | 98 | 710 |  | 31 | 0.5 |  |  |
| Slovakia | 742 |  | 2 |  | 23 | 717 | 5 | 136 | 0.4 | 27,426 | 5,023 |
| Oman | 727 | 128 | 4 |  | 124 | 599 | 3 | 142 | 0.8 |  |  |
| Diamond Princess | 712 |  | 11 |  | 619 | 82 | 10 |  |  |  |  |
| Tunisia | 707 |  | 31 |  | 43 | 633 | 85 | 60 | 3 | 11,238 | 951 |
| Bulgaria | 676 | 1 | 31 | 2 | 71 | 574 | 36 | 97 | 4 | 18,502 | 2,663 |
| Cuba | 669 |  | 18 |  | 92 | 559 | 11 | 59 | 2 | 15,057 | 1,329 |
| Latvia | 653 | 2 | 5 |  | 16 | 632 | 2 | 346 | 3 | 28,776 | 15,256 |
| Andorra | 638 |  | 29 |  | 128 | 481 | 17 | 8,257 | 375 | 1,673 | 21,653 |
| Cyprus | 633 |  | 11 |  | 65 | 557 | 8 | 524 | 9 | 17,923 | 14,845 |
| Lebanon | 630 |  | 20 |  | 80 | 530 | 34 | 92 | 3 | 15,152 | 2,220 |
| Bangladesh | 621 |  | 34 |  | 39 | 548 | 1 | 4 | 0.2 | 9,653 | 59 |
| Afghanistan | 607 |  | 19 | 1 | 32 | 556 |  | 16 | 0.5 |  |  |
| Costa Rica | 595 |  | 3 |  | 56 | 536 | 14 | 117 | 0.6 | 6,762 | 1,327 |
| Ivory Coast | 574 |  | 5 |  | 85 | 484 |  | 22 | 0.2 |  |  |
| Ghana | 566 |  | 8 |  | 4 | 554 | 2 | 18 | 0.3 | 37,954 | 1,221 |
| Niger | 529 |  | 12 |  | 75 | 442 |  | 22 | 0.5 | 4,353 | 180 |
| Burkina Faso | 497 |  | 27 |  | 161 | 309 |  | 24 | 1 |  |  |
| Uruguay | 480 |  | 8 | 1 | 231 | 241 | 15 | 138 | 2 | 8,774 | 2,526 |
| Albania | 446 |  | 23 |  | 217 | 206 | 7 | 155 | 8 | 3,877 | 1,347 |
| Channel Islands | 431 |  | 9 |  | 48 | 374 |  | 2,479 | 52 | 3,320 | 19,095 |
| Kyrgyzstan | 419 | 42 | 5 |  | 67 | 347 | 5 | 64 | 0.8 | 9,618 | 1,474 |
| Honduras | 397 | 4 | 25 |  | 7 | 365 | 10 | 40 | 3 | 1,600 | 162 |
| Taiwan | 393 | 5 | 6 |  | 114 | 273 |  | 17 | 0.3 | 47,215 | 1,982 |
| Jordan | 389 |  | 7 |  | 201 | 181 | 5 | 38 | 0.7 | 20,500 | 2,009 |
| Réunion | 389 |  |  |  | 40 | 349 | 3 | 434 |  |  |  |
| Malta | 378 |  | 3 |  | 44 | 331 | 4 | 856 | 7 | 17,058 | 38,633 |
| San Marino | 356 |  | 35 |  | 53 | 268 | 14 | 10,492 | 1,032 | 846 | 24,933 |
| Bolivia | 330 | 30 | 27 | 3 | 2 | 301 | 3 | 28 | 2 | 2,185 | 187 |
| Mauritius | 324 |  | 9 |  | 42 | 273 | 3 | 255 | 7 | 7,077 | 5,565 |
| Nigeria | 323 |  | 10 |  | 85 | 228 | 2 | 2 | 0.05 | 5,000 | 24 |
| Palestine | 290 |  | 2 |  | 58 | 230 |  | 57 | 0.4 | 17,329 | 3,397 |
| Senegal | 280 |  | 2 |  | 171 | 107 | 1 | 17 | 0.1 |  |  |
| Montenegro | 273 | 1 | 3 |  | 5 | 265 | 7 | 435 | 5 | 2,869 | 4,568 |
| Georgia | 266 | 9 | 3 |  | 67 | 196 | 6 | 67 | 0.8 | 3,271 | 820 |
| Vietnam | 262 |  |  |  | 144 | 118 | 8 | 3 |  | 121,821 | 1,252 |
| Guinea | 250 |  |  |  | 17 | 233 |  | 19 |  |  |  |
| DRC | 234 |  | 20 |  | 16 | 198 |  | 3 | 0.2 |  |  |
| Isle of Man | 228 |  | 2 |  | 112 | 114 | 11 | 2,681 | 24 | 1,934 | 22,744 |
| Djibouti | 214 |  | 2 |  | 36 | 176 |  | 217 | 2 | 4,451 | 4,505 |
| Sri Lanka | 210 |  | 7 |  | 56 | 147 | 1 | 10 | 0.3 | 4,525 | 211 |
| Kenya | 197 |  | 8 |  | 25 | 164 | 2 | 4 | 0.1 | 7,449 | 139 |
| Mayotte | 196 |  | 3 |  | 59 | 134 | 3 | 718 | 11 | 1,350 | 4,948 |
| Faeroe Islands | 184 |  |  |  | 157 | 27 |  | 3,766 |  | 5,509 | 112,744 |
| Venezuela | 181 |  | 9 |  | 93 | 79 | 6 | 6 | 0.3 | 181,335 | 6,377 |
| Martinique | 155 |  | 6 |  | 50 | 99 | 19 | 413 | 16 |  |  |
| Guatemala | 155 |  | 5 |  | 19 | 131 | 3 | 9 | 0.3 | 1,134 | 63 |
| Paraguay | 147 | 13 | 6 |  | 22 | 119 | 1 | 21 | 0.8 | 2,262 | 317 |
| Guadeloupe | 143 |  | 8 |  | 67 | 68 | 13 | 357 | 20 |  |  |
| El Salvador | 137 | 12 | 6 |  | 22 | 109 | 2 | 21 | 0.9 | 6,729 | 1,037 |
| Brunei | 136 |  | 1 |  | 106 | 29 | 2 | 311 | 2 | 9,884 | 22,593 |
| Gibraltar | 129 |  |  |  | 84 | 45 | 1 | 3,829 |  | 1,558 | 46,244 |
| Rwanda | 126 |  |  |  | 25 | 101 |  | 10 |  | 1,966 | 152 |
| Cambodia | 122 |  |  |  | 77 | 45 | 1 | 7 |  | 5,768 | 345 |
| Trinidad and Tobago | 113 |  | 8 |  | 16 | 89 |  | 81 | 6 | 1,126 | 805 |
| Madagascar | 106 |  |  |  | 20 | 86 | 1 | 4 |  |  |  |
| Mali | 105 |  | 9 |  | 22 | 74 |  | 5 | 0.4 |  |  |
| Monaco | 93 |  | 1 |  | 6 | 86 | 5 | 2,370 | 25 |  |  |
| Aruba | 92 |  |  |  | 32 | 60 | 1 | 862 |  | 1,145 | 10,724 |
| French Guiana | 86 |  |  |  | 51 | 35 | 1 | 288 |  |  |  |
| Liechtenstein | 79 |  | 1 |  | 55 | 23 |  | 2,072 | 26 | 900 | 23,605 |
| Togo | 76 |  | 3 |  | 29 | 44 |  | 9 | 0.4 | 2,532 | 306 |
| Jamaica | 72 |  | 4 |  | 16 | 52 |  | 24 | 1 | 907 | 306 |
| Barbados | 71 |  | 4 |  | 11 | 56 | 4 | 247 | 14 | 805 | 2,801 |
| Ethiopia | 71 |  | 3 |  | 10 | 58 |  | 0.6 | 0.03 | 3,863 | 34 |
| Congo | 60 |  | 5 |  | 5 | 50 |  | 11 | 0.9 |  |  |
| Bermuda | 57 |  | 4 |  | 29 | 24 | 2 | 915 | 64 | 416 | 6,680 |
| Gabon | 57 | 8 | 1 |  | 1 | 55 |  | 26 | 0.4 |  |  |
| Uganda | 54 |  |  |  | 4 | 50 |  | 1 |  | 5,025 | 110 |
| Cayman Islands | 53 |  | 1 |  | 6 | 46 | 3 | 806 | 15 | 536 | 8,156 |
| French Polynesia | 53 |  |  |  |  | 53 | 1 | 189 |  | 889 | 3,165 |
| Sint Maarten | 50 |  | 9 |  | 5 | 36 | 2 | 1,166 | 210 | 134 | 3,125 |
| Liberia | 50 |  | 5 |  | 3 | 42 |  | 10 | 1 |  |  |
| Bahamas | 47 | 1 | 8 |  | 6 | 33 | 1 | 120 | 20 |  |  |
| Guyana | 45 |  | 6 |  | 8 | 31 | 3 | 57 | 8 | 193 | 245 |
| Macao | 45 |  |  |  | 10 | 35 | 1 | 69 |  |  |  |
| Zambia | 43 |  | 2 |  | 30 | 11 | 1 | 2 | 0.1 | 1,239 | 67 |
| Myanmar | 41 |  | 4 |  | 2 | 35 |  | 0.8 | 0.07 | 1,406 | 26 |
| Guinea-Bissau | 38 |  |  |  |  | 38 |  | 19 |  | 1,500 | 762 |
| Benin | 35 |  | 1 |  | 5 | 29 |  | 3 | 0.08 |  |  |
| Eritrea | 34 |  |  |  |  | 34 |  | 10 |  |  |  |
| Haiti | 33 |  | 3 |  |  | 30 |  | 3 | 0.3 | 365 | 32 |
| Tanzania | 32 |  | 3 |  | 5 | 24 |  | 0.5 | 0.05 |  |  |
| Saint Martin | 32 |  | 2 |  | 11 | 19 | 5 | 828 | 52 |  |  |
| Somalia | 25 |  | 2 | 1 | 2 | 21 | 2 | 2 | 0.1 |  |  |
| Syria | 25 |  | 2 |  | 5 | 18 |  | 1 | 0.1 |  |  |
| Libya | 25 |  | 1 |  | 9 | 15 |  | 4 | 0.1 | 535 | 78 |
| Antigua and Barbuda | 21 |  | 2 |  |  | 19 | 1 | 214 | 20 | 40 | 408 |
| Equatorial Guinea | 21 |  |  |  | 3 | 18 |  | 15 |  | 854 | 609 |
| Mozambique | 21 |  |  |  | 2 | 19 |  | 0.7 |  | 679 | 22 |
| Maldives | 20 |  |  |  | 14 | 6 |  | 37 |  |  |  |
| Angola | 19 |  | 2 |  | 4 | 13 |  | 0.6 | 0.06 |  |  |
| Sudan | 19 |  | 2 |  | 2 | 15 |  | 0.4 | 0.05 |  |  |
| Laos | 19 |  |  |  |  | 19 |  | 3 |  | 1,140 | 157 |
| Chad | 18 |  |  |  | 2 | 16 |  | 1 |  |  |  |
| New Caledonia | 18 |  |  |  | 1 | 17 |  | 63 |  | 2,608 | 9,135 |
| Mongolia | 17 | 1 |  |  | 4 | 13 |  | 5 |  |  |  |
| Dominica | 16 |  |  |  | 8 | 8 |  | 222 |  | 345 | 4,793 |
| Fiji | 16 |  |  |  |  | 16 |  | 18 |  |  |  |
| Namibia | 16 |  |  |  | 3 | 13 |  | 6 |  | 362 | 142 |
| Saint Lucia | 15 |  |  |  | 4 | 11 |  | 82 |  |  |  |
| Zimbabwe | 14 |  | 3 |  |  | 11 |  | 0.9 | 0.2 | 563 | 38 |
| Belize | 14 |  | 2 |  |  | 12 | 1 | 35 | 5 | 364 | 915 |
| Curaçao | 14 |  | 1 |  | 8 | 5 |  | 85 | 6 |  |  |
| Grenada | 14 |  |  |  |  | 14 | 2 | 124 |  | 92 | 818 |
| Eswatini | 14 |  |  |  | 7 | 7 |  | 12 |  |  |  |
| Malawi | 13 |  | 2 |  |  | 11 | 1 | 0.7 | 0.1 | 287 | 15 |
| Botswana | 13 |  | 1 |  |  | 12 |  | 6 | 0.4 | 3,115 | 1,325 |
| Nepal | 13 | 1 |  |  | 1 | 12 |  | 0.4 |  | 5,184 | 178 |
| Saint Kitts and Nevis | 12 |  |  |  |  | 12 |  | 226 |  | 205 | 3,853 |
| St. Vincent Grenadines | 12 |  |  |  | 1 | 11 |  | 108 |  | 56 | 505 |
| Greenland | 11 |  |  |  | 11 | 0 |  | 194 |  | 912 | 16,065 |
| Montserrat | 11 | 2 |  |  | 1 | 10 | 1 | 2,204 |  | 36 | 7,212 |
| Seychelles | 11 |  |  |  |  | 11 |  | 112 |  |  |  |
| Suriname | 10 |  | 1 |  | 4 | 5 |  | 17 | 2 |  |  |
| Sierra Leone | 10 |  |  |  |  | 10 |  | 1 |  |  |  |
| MS Zaandam | 9 |  | 2 |  |  | 7 |  |  |  |  |  |
| Gambia | 9 |  | 1 |  | 2 | 6 |  | 4 | 0.4 | 281 | 116 |
| Nicaragua | 9 |  | 1 |  | 4 | 4 |  | 1 | 0.2 |  |  |
| Turks and Caicos | 9 |  | 1 |  |  | 8 |  | 232 | 26 | 62 | 1,601 |
| Cabo Verde | 8 |  | 1 |  | 1 | 6 |  | 14 | 2 |  |  |
| CAR | 8 |  |  |  |  | 8 |  | 2 |  |  |  |
| Vatican City | 8 |  |  |  | 2 | 6 |  | 9,988 |  |  |  |
| Mauritania | 7 |  | 1 |  | 2 | 4 |  | 2 | 0.2 | 496 | 107 |
| St. Barth | 6 |  |  |  | 4 | 2 |  | 607 |  |  |  |
| Western Sahara | 6 |  |  |  |  | 6 |  | 10 |  |  |  |
| Bhutan | 5 |  |  |  | 2 | 3 |  | 6 |  | 1,166 | 1,511 |
| Burundi | 5 |  |  |  |  | 5 |  | 0.4 |  |  |  |
| Falkland Islands | 5 |  |  |  | 1 | 4 |  | 1,437 |  | 137 | 39,368 |
| Sao Tome and Principe | 4 |  |  |  |  | 4 |  | 18 |  | 19 | 87 |
| South Sudan | 4 |  |  |  |  | 4 |  | 0.4 |  |  |  |
| Anguilla | 3 |  |  |  | 1 | 2 |  | 200 |  |  |  |
| British Virgin Islands | 3 |  |  |  | 2 | 1 |  | 99 |  |  |  |
| Caribbean Netherlands | 3 |  |  |  |  | 3 |  | 114 |  | 10 | 381 |
| Papua New Guinea | 2 |  |  |  |  | 2 |  | 0.2 |  | 72 | 8 |
| Timor-Leste | 2 |  |  |  | 1 | 1 |  | 2 |  |  |  |
| Saint Pierre Miquelon | 1 |  |  |  |  | 1 |  | 173 |  |  |  |
| Yemen | 1 |  |  |  |  | 1 |  | 0.03 |  |  |  |
| Total: | 1,854,214 | 1,957 | 114,293 | 99 | 428,082 | 1,311,839 | 50,852 | 237.9 | 14.7 |  |  |

Table 1- Analysis of the cases of COVID-19



Figure 2-Cases, deaths and recoveries of COVID-19

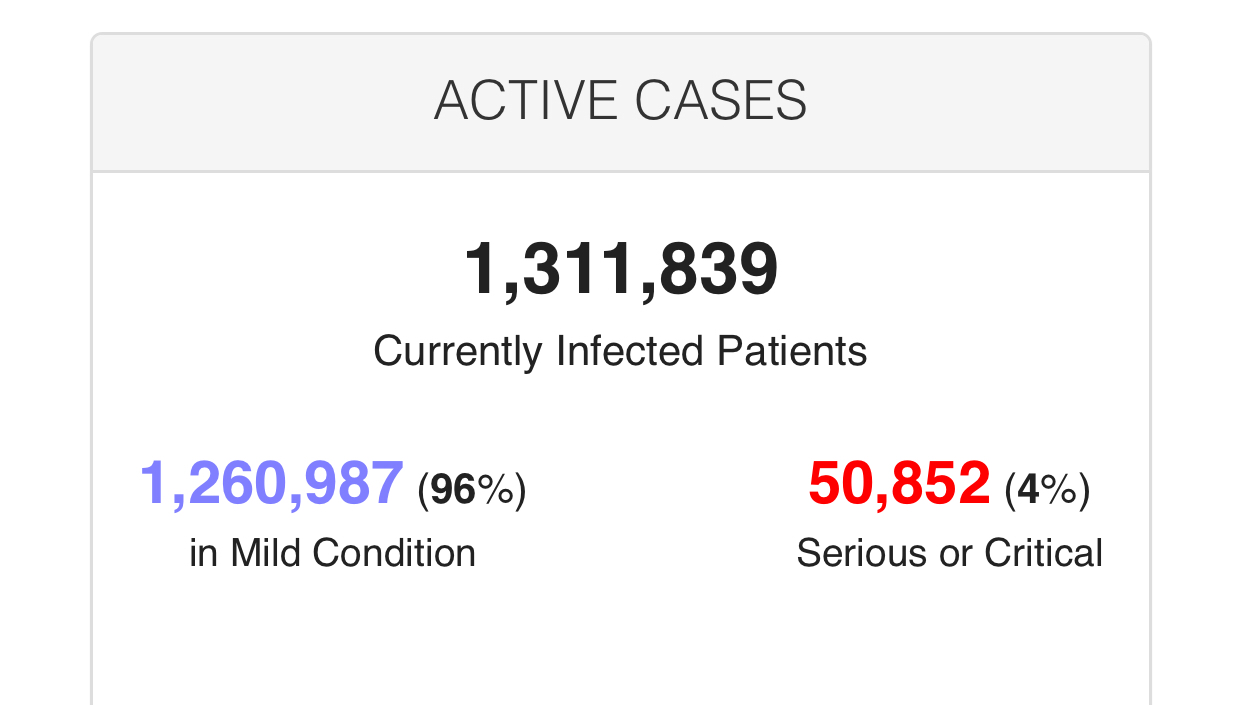


Figure 3-Infected patients in mild and critical conditions

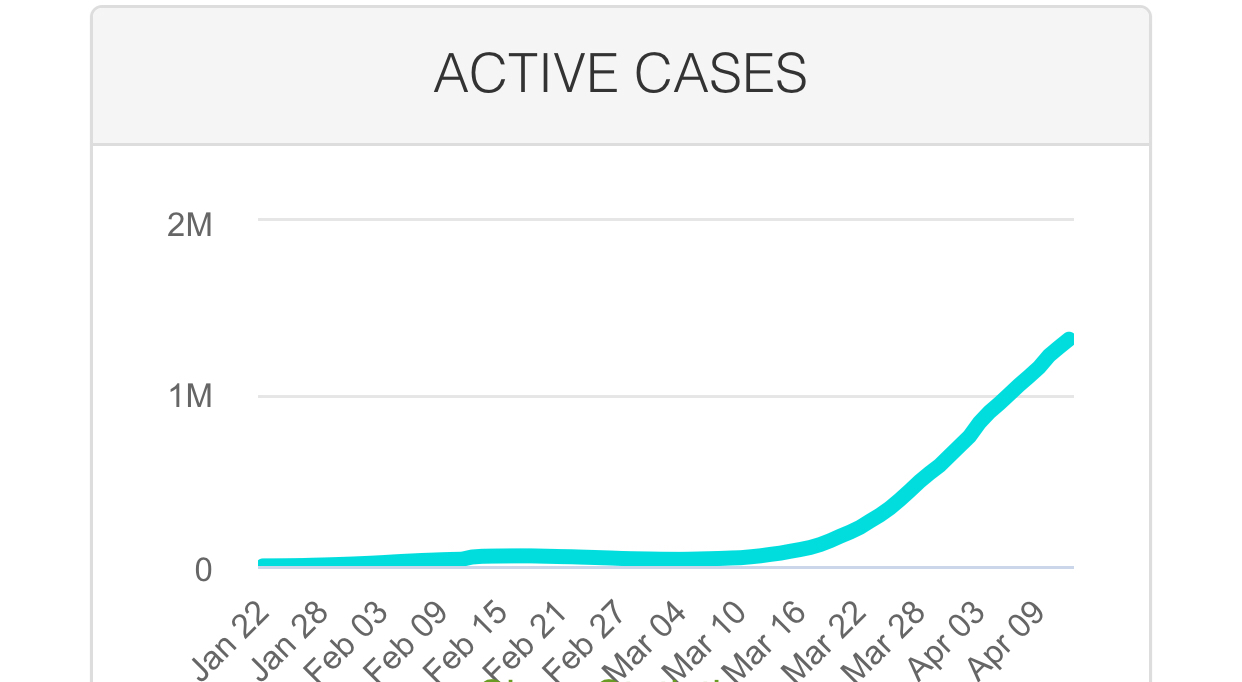


Figure 4-Graph of ACTIVE cases of COVID-19

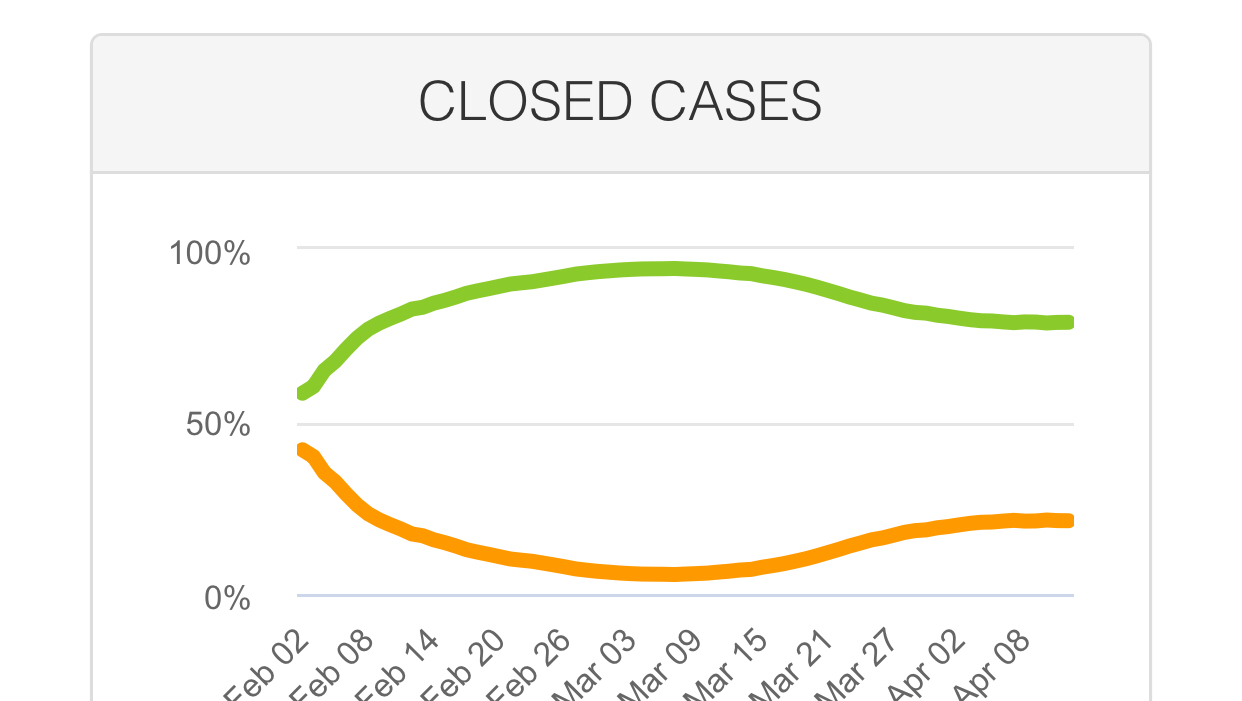


Figure 5- Graph of CLOSED cases of COVID-19

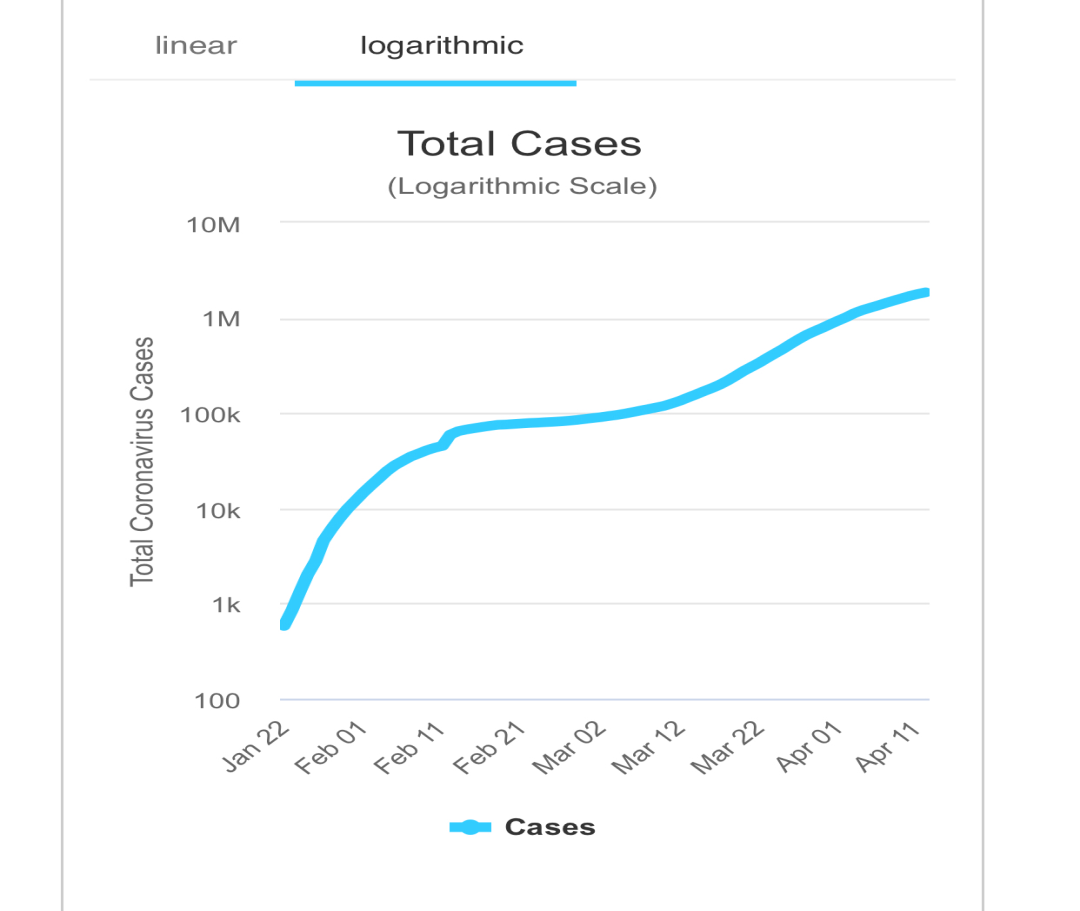


Figure 6-Logarithmic graph of the total cases of COVID-19

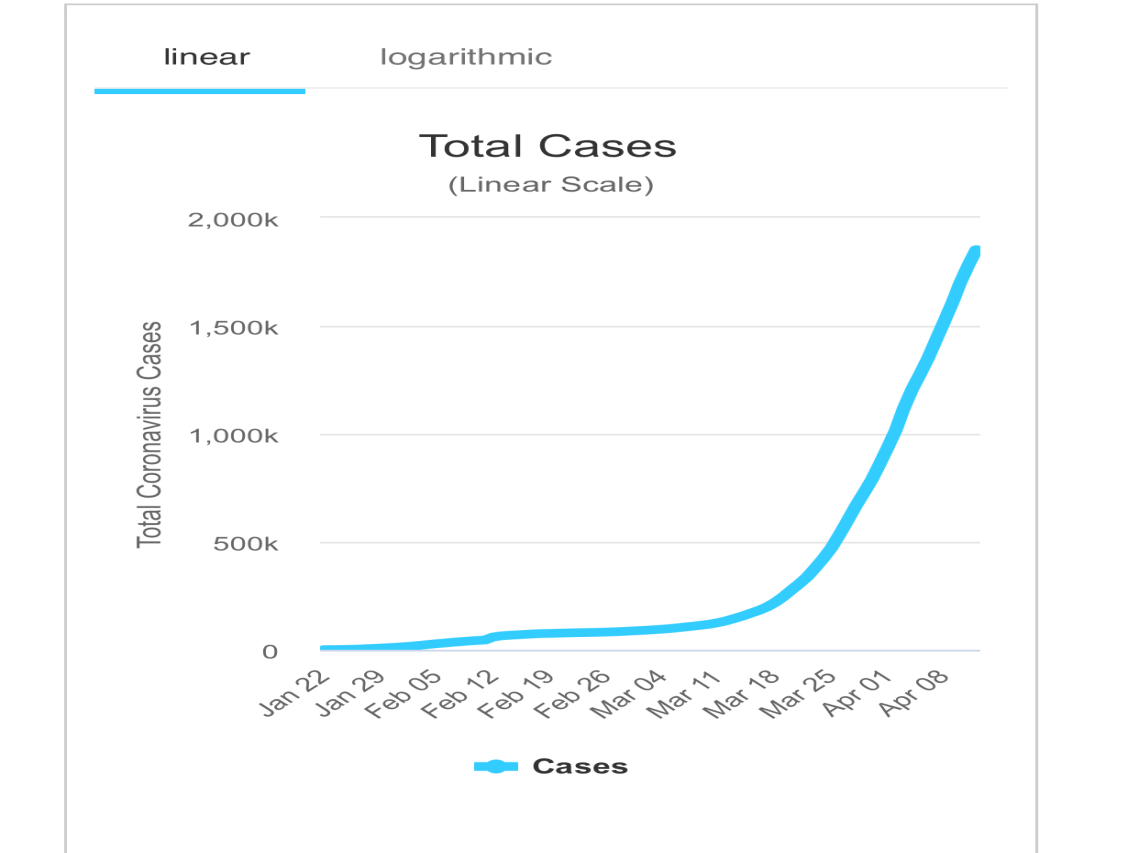


Figure 7-Linear graph of the total cases of COVID-19

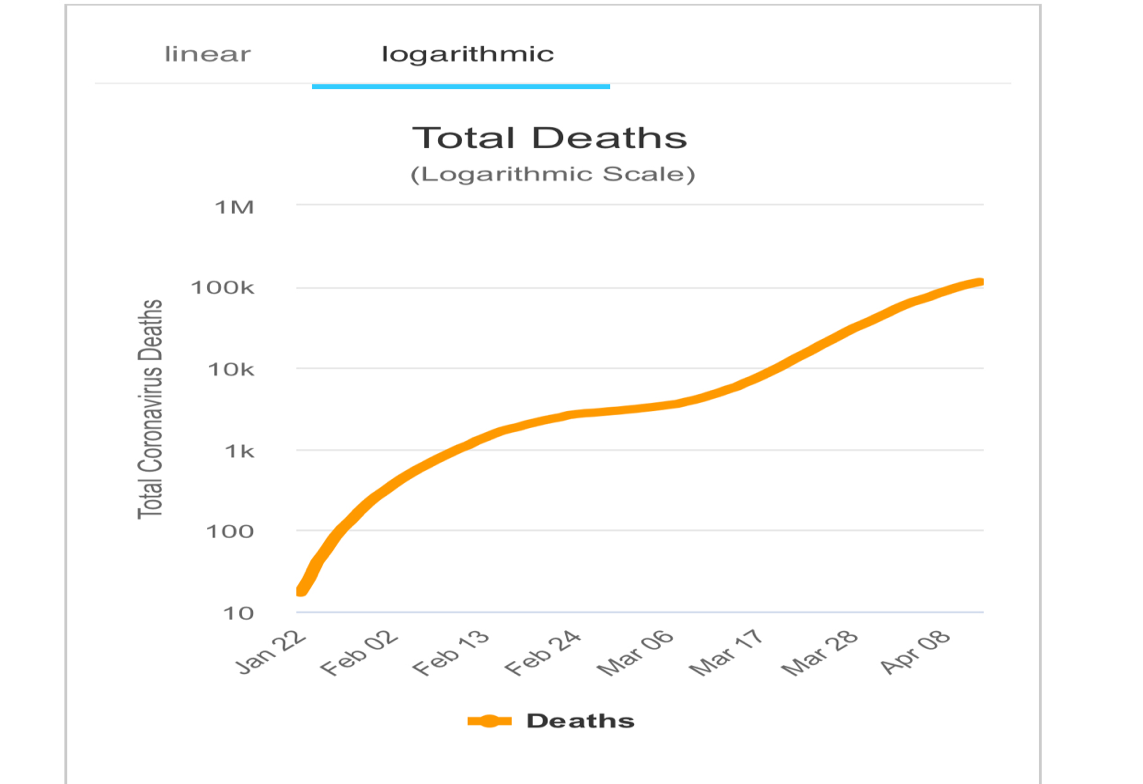


Figure 8- Logarithmic graph of the total deaths of COVID-19



Figure 9- Linear graph of the total deaths of COVID-19

All over the world right now, the ***COVID-19*** pandemic has given every nook and cranny of each country a big blow in the face and that’s to say the very least! The ***COVID-19*** pandemic is straining the health systems worldwide, and the rapidly increasing demand on health facilities, health care workers threatening to leave some health systems is a gunshot to the wound already sustained by the world at large and this in turn would not enhance effective workability of supposedly envisaged development of health system management.

Previous outbreaks have demonstrated that when health systems are overwhelmed, mortality from vaccine-preventable and other treatable conditions can also increase dramatically. During the 2014-2015 Ebola outbreak, the increased number of deaths caused by measles, malaria, HIV/AIDS and tuberculosis attributable to health system failures exceeded deaths from Ebola.

The following are methods and ways that can be used to tackle the virus during its attack, before and after its attack;

1. ***Routine vaccination***

Routine vaccines are those recommended for everyone depending on age and vaccine and history. Most people think of these as childhood vaccines that you get before starting school, but CDC also recommends routine vaccines for adults like Flu vaccine, polio vaccine, tetanus booster shots. There should be time-to—time vaccinations ready for tackling corona virus so as to stay ready to fight the virus if there’s any chance that it will resurface.

1. ***Care during pregnancy and childbirth***

It is a widely known information that any virus of any sort attacks pregnant women faster because their immune system is already weak and affected thereby giving the virus easy entrance to the body system of these victims so it is very important that pregnant women are looked into and given enough care and protection against the virus.

1. ***Care of young infants and older adults***

Young infants and older adults are also very liable to get affected faster than other people because their immune system is not as strong as it is meant to be, and in that case, the virus attacks these lots faster than normal and when it does, their body is not strong enough to resist so they die faster so these people too should also be taken a good look at whilst caring and protecting pregnant women from this virus.

1. ***Management of mental health conditions as well as non-communicable diseases and infectious diseases like HIIV, malaria and tuberculosis***

Researches have shown that when viruses attack the body system, other smaller sicknesses like malaria, tuberculosis, HIV attack faster because the virus has paved a way for these sicknesses to penetrate the body system and in order to prevent this, all these casualties are managed beforehand.

1. ***Critical inpatient therapies***

An inpatient is someone under treatment that lives in the hospital and they should be given critical therapies that helps them live better after being diagnosed with these virus.

1. ***Management of emergency health conditions***

Management of emergencies is an integral part of primary care. Medical emergencies like chest pain accompanied by sweating, vomiting, nausea, shortness of breath and other symptoms that this virus comes with, it’s best to know how to manage these situations with adequate and efficient facilities.

1. ***Auxiliary services (i.e basic diagnostic imaging, laboratory services and blood-bank services etc)***

Other services like basic diagnostic imaging, laboratory services and blood-bank services should not be found wanting in this point in time because it is crucial and important that tests are being run every single time a patient is being admitted and it should be done as quick and swift as it can get.

In conclusion, after adhering to these above discussed views and ideas, the pandemic can therefore be brought close too silence if not silenced afterall.