Global Medical Oxygen Concentrators & Oxygen Cylinders
MARKET ESTIMATES & TREND ANALYSIS FROM 2014 TO 2026
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Global Medical Oxygen Concentrators & Oxygen Cylinders

MARKET ANALYSIS & SEGMENT FORECAST
FROM 2021 TO 2026

Market by Product Type: Portable Medical Oxygen Concentrators, Stationary Medical Oxygen Concentrators and Oxygen Cylinders

Market by End User: Home Care and Non Homecare

Market by Technology: Continuous Flow and Pulse Flow

Market by Region: North America, Europe, Asia Pacific, Latin America and Middle East & Africa

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Table of Contents

CHAPTER 01 Executive Summary .......................................................... 11
  1.1 Market Snapshot, Revenue (USD Million) ............................................. 12
  1.2 Market Snapshot, Volume (Units) ....................................................... 13

CHAPTER 02 Market Variables, Trends & Scope ....................................... 14
  2.1 Medical Oxygen Concentrators & Oxygen Cylinders Market Dynamics ......... 14
      2.1.1 MARKET DRIVER ANALYSIS .................................................... 14
          2.1.1.1 Technological improvements in medical oxygen concentrators ........ 14
          2.1.1.2 Increasing prevalence of Chronic Obstructive Pulmonary Disease (COPD) and other lung disorders ......................................................... 15
          2.1.1.3 Increasing number of government initiatives for COPD awareness .......... 15
          2.1.1.4 Growing geriatric population susceptible to respiratory problems .......... 16
      2.1.2 MARKET RESTRAINTS ANALYSIS .............................................. 16
          2.1.2.1 Low penetration of medical oxygen concentrators in developing and underdeveloped economies ................................................................. 17
          2.1.2.2 High cost of Medical Oxygen Concentrators with respect to medical cylinders .......... 17
      2.1.3 INDUSTRY CHALLENGE .......................................................... 17
  2.2 Medical Oxygen Concentrators & Oxygen Cylinders Market Analysis Tools ........ 18
      2.2.1 MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET – PESTL ANALYSIS ......................................................... 18
      2.2.2 INDUSTRY ANALYSIS – PORTER’S ............................................. 19

CHAPTER 03 Medical Oxygen Concentrators & Oxygen Cylinders Market:
  Competitive Analysis ........................................................................... 20
  3.1 Recent Developments & Impact Analysis, by Key Market Participants .......... 20
  3.2 COVID-19 Pandemic Impact on Global Medical Oxygen Concentrators Market ........ 21
  3.3 Opportunity Analysis & Product Substitutes ....................................... 21

CHAPTER 04 Medical Oxygen Concentrators & Oxygen Cylinders Market:
  Product Type Market Estimates & Trend Analysis ..................................... 23
  4.1 Product Type Movement Analysis, Revenue (USD Million) ......................... 23
  4.2 Product Type Movement Analysis, Volume (Units) ................................ 24
      4.2.1 PORTABLE OXYGEN CONCENTRATOR ....................................... 24
          4.2.1.1 Global portable oxygen concentrators market, 2019 & 2026 (USD Million) ..... 25
          4.2.1.2 Global portable oxygen concentrators market, 2019 & 2026 (units) ............ 25
      4.2.2 STATIONARY OXYGEN CONCENTRATOR ..................................... 26
4.2.2.1 Global stationary oxygen concentrators market, 2019 & 2026 (USD Million) ...........26
4.2.2.2 Global stationary oxygen concentrators market, 2019 & 2026 (Units) .....................27
4.2.3 OXYGEN CYLINDERS ..................................................................................................27
  4.2.3.1 Global oxygen cylinders market, 2019 & 2026 (USD Million) ..........................28
  4.2.3.2 Global oxygen cylinders market, 2019 & 2026 (Units) ........................................28

CHAPTER 05 Medical Oxygen Concentrators & Oxygen Cylinders Market: End User Market Estimates & Trend Analysis ................................................................. 29

5.1 Medical Oxygen Concentrators & Oxygen Cylinders Market: End User Analysis .......... 29
5.2 End User movement analysis, Revenue (USD Million) ................................................ 29
5.3 End User movement analysis, Volume (Units) ............................................................ 30
  5.3.1 HOME CARE ...........................................................................................................30
  5.3.1.1 Global homecare market, 2019 & 2026 (USD Million) .......................................31
  5.3.1.2 Global homecare market, 2019 & 2026 (Units) ................................................31
  5.3.2 NON-HOME CARE ..................................................................................................32
  5.3.2.1 Global non-homecare market, 2019 & 2026 (USD Million) ..............................32
  5.3.2.2 Global non-homecare market, 2019 & 2026 (Units) ...........................................32

CHAPTER 06 Medical Oxygen Concentrators & Oxygen Cylinders Market: By Technology Market Estimates & Trend Analysis .................................................. 33

6.1 Medical Oxygen Concentrators & Oxygen Cylinders Market: Technology Analysis ....... 33
6.2 Technology Movement Analysis, Revenue (USD Million) ............................................. 33
6.3 Technology Movement Analysis, Volume (Units) ........................................................ 34
  6.3.1 PULSE FLOW ...........................................................................................................34
  6.3.1.1 Global pulse flow market, 2019 & 2026 (USD Million) .......................................35
  6.3.1.2 Global pulse flow market, 2019 & 2026 (Units) ................................................35
  6.3.2 CONTINUOUS FLOW ............................................................................................36
  6.3.2.1 Global continuous flow market, 2019 & 2026 (USD Million) ..............................36
  6.3.2.2 Global continuous flow market, 2019 & 2026 (Units) ...........................................37

CHAPTER 07 Medical Oxygen Concentrators & Oxygen Cylinders Market: Regional Estimates & Trend Analysis, By Product Type, End User and Technology ........................................................................................................... 38

7.1 Medical Oxygen Concentrators & Oxygen Cylinders Market: Regional Movement Analysis .. 38
7.2 North America ............................................................................................................... 39
  7.2.1 NORTH AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION) .........................39
  7.2.2 NORTH AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS) ...........................................40
  7.2.3 U.S. .........................................................................................................................40
7.2.3.1 U.S. Medical Oxygen Concentrators & Oxygen Cylinders market, 2019 & 2026 (USD Million) ................................................................. 41
7.2.3.2 U.S. Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 41
7.2.4 CANADA ......................................................................................... 42
7.2.4.1 Canada Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 42
7.2.4.2 Canada Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 43
7.3 Europe .............................................................................................. 43
7.3.1 EUROPE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION) ................................................................. 44
7.3.2 EUROPE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS) ................................................................. 44
7.3.3 UK ................................................................................................ 45
7.3.3.1 UK Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 45
7.3.3.2 UK Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 46
7.3.4 GERMANY .................................................................................... 46
7.3.4.1 Germany Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 47
7.3.4.2 Germany Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 47
7.3.5 FRANCE ....................................................................................... 48
7.3.5.1 France Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 48
7.3.5.2 France Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 49
7.3.6 ITALY ............................................................................................ 49
7.3.6.1 Italy Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 50
7.3.6.2 Italy Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 50
7.3.7 SPAIN .......................................................................................... 51
7.3.7.1 Spain Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 51
7.3.7.2 Spain Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 52
7.3.8 RUSSIA ....................................................................................... 52
7.3.8.1 Russia Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ................................................................. 53
7.3.8.2 Russia Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ................................................................. 53
7.4 Asia Pacific ....................................................................................... 54
7.4.1 ASIA PACIFIC MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION) ................................................................. 54
7.4.2 ASIA PACIFIC MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS) .................................................. 55
7.4.3 JAPAN ........................................................................................................... 55
  7.4.3.1 Japan Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 56
  7.4.3.2 Japan Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 56
7.4.4 CHINA .......................................................................................................... 57
  7.4.4.1 China Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 57
  7.4.4.2 China Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 58
7.4.5 INDIA ............................................................................................................. 58
  7.4.5.1 India Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 59
  7.4.5.2 India Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 59
7.4.6 SOUTH KOREA ............................................................................................ 60
  7.4.6.1 South Korea Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 60
  7.4.6.2 South Korea Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 61
7.4.7 SINGAPORE .................................................................................................. 61
  7.4.7.1 Singapore Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 62
  7.4.7.2 Singapore Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 62
7.4.8 AUSTRALIA .................................................................................................. 63
  7.4.8.1 Australia Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 63
  7.4.8.2 Australia Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 64
7.5 Latin America ................................................................................................. 64
  7.5.1 LATIN AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION) ......................... 65
  7.5.2 LATIN AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS) ........................................ 65
  7.5.3 BRAZIL ...................................................................................................... 66
    7.5.3.1 Brazil Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (USD Million) ............................................................... 66
    7.5.3.2 Brazil Medical Oxygen Concentrators & Oxygen Cylinders MARKET, 2019 & 2026 (Units) ........................................................................ 67
CHAPTER 08 Competitive Landscape ........................................................................ 77

8.1 Company Profiles ............................................................................................. 77
  8.1.1 INVACARE CORPORATION ........................................................................ 77
    8.1.1.1 Company overview .................................................................................. 77
    8.1.1.2 Financial performance ........................................................................... 77
    8.1.1.3 Product benchmarking ........................................................................... 78
    8.1.1.4 Strategic initiatives ................................................................................ 80
  8.1.2 KONINKLIJE PHILIPS N.V. (PHILIPS RESPRONICS) .................................... 81
    8.1.2.1 Company overview .............................................................................. 81
    8.1.2.2 Financial performance .......................................................................... 81
    8.1.2.3 Product benchmarking .......................................................................... 82
    8.1.2.4 Strategic initiatives ................................................................................ 82
  8.1.3 DRIVE DEVLBISS HEALTHCARE INC. .......................................................... 83
    8.1.3.1 Company overview .............................................................................. 83
8.1.3.2 Product benchmarking
8.1.3.3 Strategic initiatives

8.1.4 CAIRE INC.
8.1.4.1 Company overview
8.1.4.2 Product benchmarking
8.1.4.3 Strategic initiatives

8.1.5 INOGEN INC.
8.1.5.1 Company overview
8.1.5.2 Financial performance
8.1.5.3 Product benchmarking
8.1.5.4 Strategic initiatives

8.1.6 RESMED
8.1.6.1 Company overview
8.1.6.2 Financial performance
8.1.6.3 Product benchmarking
8.1.6.4 Strategic initiatives
Index of Figures

Fig.1 Medical oxygen concentrators & oxygen cylinders market snapshot (USD million), 2019 ........................................ 12
Fig.2 Medical oxygen concentrators & oxygen cylinders market snapshot (Units), 2019 .................................................. 13
Fig.3 Medical oxygen concentrators & oxygen cylinders market driver impact ................................................................. 14
Fig.4 Medical oxygen concentrators & oxygen cylinders market restraint impact .............................................................. 16
Fig.5 Medical oxygen concentrators & oxygen cylinders market – PESTL analysis .......................................................... 18
Fig.6 Medical oxygen concentrators & oxygen cylinders market – Porter’s analysis .......................................................... 19
Fig.7 Medical oxygen concentrators & oxygen cylinders market: Recent developments & impact analysis ...................... 20
Fig.8 Medical oxygen concentrators & oxygen cylinders market: Product type analysis .................................................... 23
Fig.9 Medical oxygen concentrators & oxygen cylinders market: Product type movement analysis .............................. 24
Fig.10 Global portable oxygen concentrators market, 2019 & 2026 (USD Million) ............................................................. 25
Fig.11 Global portable oxygen concentrators market, 2019 & 2026 (Units) ................................................................. 25
Fig.12 Global stationary oxygen concentrators market, 2019 & 2026 (USD Million) ....................................................... 26
Fig.13 Global stationary oxygen concentrators market, 2019 & 2026 (Units) ............................................................... 27
Fig.14 Global oxygen cylinders market, 2019 & 2026 (USD Million) ................................................................. 28
Fig.15 Global oxygen cylinders market, 2019 & 2026 (Units) ............................................................... 28
Fig.16 Medical oxygen concentrators & oxygen cylinders market: End user movement analysis ......................................... 29
Fig.17 Medical oxygen concentrators & oxygen cylinders market: End user movement analysis .............................. 30
Fig.18 Global homecare market, 2019 & 2026 (USD Million) ................................................................. 31
Fig.19 Global homecare market, 2019 & 2026 (Units) ............................................................... 31
Fig.20 Global non-homecare market, 2019 & 2026 (USD Million) ................................................................. 32
Fig.21 Global non-homecare market, 2019 & 2026 (Units) ............................................................... 32
Fig.22 Medical oxygen concentrators & oxygen cylinders market: Product type movement analysis ....................... 33
Fig.23 Medical oxygen concentrators & oxygen cylinders market: Product type movement analysis ....................... 33
Fig.24 Global pulse flow market, 2019 & 2026 (USD Million) ........................................................................... 34
Fig.25 Global pulse flow market, 2019 & 2026 (Units) ........................................................................... 35
Fig.26 Global continuous flow market, 2019 & 2026 (USD Million) ........................................................................... 36
Fig.27 Global continuous flow market, 2019 & 2026 (Units) .................................................................................. 37
Fig.28 Medical oxygen concentrators & oxygen cylinders market: Country movement analysis (USD Million) .............. 38
Fig.29 North America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ........... 39
Fig.30 North America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) .................... 40
Fig.31 U.S. medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ...................... 41
Fig.32 U.S. medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................................. 41
Fig.33 Canada medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .............. 42
Fig.34 Canada medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ......................... 43
Fig.35 Europe medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............... 44
Fig.36 Europe medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ......................... 44
Fig.37 UK medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ..................... 45
Fig.38 UK medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................................. 46
Fig.39 Germany medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .......... 47
Fig.40 Germany medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ......................... 47
Fig.41 France medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............. 48
Fig.42 France medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ......................... 49
Fig.43 Italy medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............... 50
Fig.44 Italy medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................................. 50
Fig.45 Spain medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............. 51
Fig.46 Spain medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................................. 52
Fig.47 Russia medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............. 53
Fig.48 Russia medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................................. 53
Fig.49 Asia Pacific medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .......... 54
Fig.50 Asia Pacific medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ......................... 55
Fig.51 Japan medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............... 56
Fig.52 Japan medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................................. 56
Fig.53 China medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ............. 57
Fig. 54 China medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units).......................... 58
Fig. 55 India medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ........... 59
Fig. 56 India medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................ 59
Fig. 57 South Korea medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 60
Fig. 58 South Korea medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ............ 61
Fig. 59 Singapore medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 62
Fig. 60 Singapore medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) .......... 62
Fig. 61 Australia medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 63
Fig. 62 Australia medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ............ 64
Fig. 63 Latin America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 65
Fig. 64 Latin America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ........... 65
Fig. 65 Brazil medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .......... 66
Fig. 66 Brazil medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................. 67
Fig. 67 Mexico medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ........ 68
Fig. 68 Mexico medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) .......... 68
Fig. 69 Argentina medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 69
Fig. 70 Argentina medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) .......... 70
Fig. 71 MEA medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 71
Fig. 72 MEA medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................. 71
Fig. 73 South Africa medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) .... 72
Fig. 74 South Africa medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) .......... 73
Fig. 75 UAE medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million) ........... 74
Fig. 76 UAE medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units) ................. 74
Fig. 77 Saudi Arabia Medical Oxygen Concentrators & Oxygen Cylinders market, 2019 & 2026 (USD Million) ... 75
Fig. 78 Saudi Arabia Medical Oxygen Concentrators & Oxygen Cylinders market, 2019 & 2026 (Units) ....... 76
CHAPTER 01 Executive Summary

Rising incidence of COPD and technological improvement in medical oxygen concentrators are some of the major factors driving the market.

The global medical oxygen concentrators & oxygen cylinders market was valued at USD 2,861.2 million in 2019 and is expected to reach USD 3,712.1 million by 2026. Growing incidence of Chronic Obstructive Pulmonary Diseases (COPDs) and growing technological advancements for the miniaturization of the oxygen concentrators are some of the key factors expected to drive the market growth over the forecast period.

Based on the product type, portable oxygen concentrators dominated the market with a revenue share of 35.21% in 2019 and are expected to witness significant growth over the forecast period. On-going technological advancements in their design and provision of reimbursements are some of the factors that have increased their adoption in developed countries.

Based on technology, continuous flow segment dominated the market with a revenue of USD 1,612.7 million in 2019. Concentrators with this technology are comparatively affordable and are best suited for elder people and bedridden patients owing to their sedentary lifestyle. On the other hand, concentrators with pulse flow technology are expected to grow at the fastest CAGR over the forecast period. Growing adoption of portable concentrators among people with active lifestyle is expected to drive the market over the forecast period.

Based on end users, home care segment dominated the market with a revenue of USD 1,613.5 million in 2019. Increasing usage of concentrators at home, and provision of reimbursement for home based oxygen products are the leading factors driving the market over the forecast period.

North America dominated the global medical oxygen concentrators & oxygen cylinders market in 2019 with a market share of 32.4% and is expected to grow at the fastest CAGR over the forecast period. Increase in incidence of COPDs and strong presence of key players in the region are also driving the market in this region. Some of the key companies operating in the global medical oxygen concentrators & oxygen cylinders devices market are Invacare Corporation; Philips Respironics; Inogen, Inc.; and Caire Inc. Other key competitors in this market are DeVilbiss Healthcare LLC; ResMed; and OxyGo, LLC.
1.1 Market Snapshot, Revenue (USD Million)

Fig. 1 Medical oxygen concentrators & oxygen cylinders market snapshot (USD million), 2019

Source: WHO, U.S. CDC, FDA, Investor Presentations, Primary Interviews, Grand View Research
1.2 Market Snapshot, Volume (Units)

Fig. 2 Medical oxygen concentrators & oxygen cylinders market snapshot (Units), 2019

Source: WHO, U.S. CDC, FDA, Investor Presentations, Primary Interviews, Grand View Research
2.1 Medical Oxygen Concentrators & Oxygen Cylinders Market Dynamics

2.1.1 MARKET DRIVER ANALYSIS

Oxygen concentrators allow patients to adopt an active lifestyle. They can easily carry out their day-to-day activities while using concentrators. Hence, manufacturers are trying to miniaturize portable oxygen concentrators, as smaller size products are preferred by large patient group. The smaller the size, the more ideal it is for ambulatory patients, who struggle to carry cylinders.

Moreover, manufacturers are introducing new technologies in concentrators that aim to improve the quality of care. For instance, recently in February 2018, GCE healthcare launched a remote monitoring platform – Clarity - for oxygen concentrators. The technology monitors the patients, and regularly sends the data related to oxygen purity, device location, and battery life to provider and patient’s family members. Such technological advancements in portable concentrators attract more customers and hence create a demand for oxygen concentrators.
2.1.1.2 INCREASING PREVALENCE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND OTHER LUNG DISORDERS

The prevalence of COPD and other lung disorders is high in tobacco smokers, and people exposed to airborne pollutants. COPD is a leading cause of mortality and morbidity worldwide. According to the European Respiratory Society, in 2019, COPD is the fourth major cause of mortality & morbidity and is expected to become the third leading cause of mortality & morbidity in the next ten years, if the prevalence grows at the same rate. According to the Global Burden of Disease Study, in 2016, the prevalence of COPD was 251 million globally.

Furthermore, according to the U.S. government, in 2017, over 16 million U.S. adults were diagnosed with COPD, around 9 million with chronic bronchitis, and 3.5 million with emphysema. In addition, COPD is the cause of over 7 million emergency department visits each year in the U.S. Similar scenarios have been observed in other countries.

COPD cannot be cured; however, it can be managed effectively by taking medications and opting for oxygen therapies, as they help COPD patients function properly and carry day-to-day activities smoothly. People suffering from chronic COPD are totally dependent on oxygen therapies to breathe. Moreover, long-term use of supplemental oxygen has improved the survival rate of patients with COPD. Hence, rising prevalence of COPD & other lung diseases and dependence of COPD patients on oxygen therapy products are among the factors boosting the demand for oxygen concentrators and cylinders.

2.1.1.3 INCREASING NUMBER OF GOVERNMENT INITIATIVES FOR COPD AWARENESS

COPD is a leading cause of death in the U.S.; however, many people are still ignorant about it, thus many cases remain undiagnosed. Hence, governments in various countries have undertaken initiatives to educate people about the early symptoms and ways of managing the condition. For instance, the National Heart, Lung, and Blood Institute (NHLBI) in the U.S. initiated the COPD Learn More Breathe Better Program—a national health education program—that aims to create awareness about lung health in the country. The program aims to increase recognition of signs and symptoms of lung diseases to encourage early detection & treatment.

Furthermore, the NHLBI and the WHO formed the Global Initiative for Chronic Obstructive Lung Disease (GOLD) with an objective to increase awareness about COPD and help people in management of the disease. Moreover, the American Lung Association promotes awareness about COPD. In Europe, several campaigns & programs have been launched by many government and nongovernment organizations to educate citizens about COPD and ways to manage it. Thus, rising number of government initiatives and awareness campaigns by various organizations to educate patients about COPD is expected to drive the market for oxygen concentrators and oxygen cylinders over the forecast period.
2.1.1.4 GROWING GERIATRIC POPULATION SUSCEPTIBLE TO RESPIRATORY PROBLEMS

According to National Institutes of Health Census Bureau, in 2016, around 8.5% of the people worldwide, i.e., around 617 million people were aged 65 and above. Moreover, this number is expected to reach 1.6 billion by 2050. In addition, the number of people aged 80 and above is expected to increase from 126.5 million in 2015 to 446.6 million in 2050. Growing healthcare expenditure, better medical facilities, and rapid technological advancements have helped increase life expectancy of people globally. However, geriatric population is more susceptible to cardiovascular disorders and lung diseases owing to weak immune system. Elderly people have less pulmonary reserve and a reduced cough strength due to anatomic changes and muscle loss. Hence, they are at a high risk of developing lung disorders and various breathing problems. Increasing geriatric population is expected to boost the demand for oxygen therapy products such as concentrators and cylinders over the forecast period.

2.1.2 MARKET RESTRAINTS ANALYSIS

![Graph showing market restraint impact](image)

Source: WHO, U.S. CDC, FDA, Investor Presentations, Primary Interviews, Grand View Research

- High cost of medical oxygen concentrators with respect to medical cylinders
- Low penetration of medical oxygen concentrators in developing and underdeveloped economies
2.1.2.1 LOW PENETRATION OF MEDICAL OXYGEN CONCENTRATORS IN DEVELOPING AND UNDERDEVELOPED ECONOMIES

Developed and underdeveloped countries are facing shortage of medical devices. Supply chain and distribution network of oxygen concentrators in developing and underdeveloped economies are not well-developed owing to factors such as remote location of healthcare facilities, unavailability of trained staff, and limited number of manufacturers & distributors. Moreover, transportation costs of these devices are high, which is expected to restrict the growth of this market over the forecast period. Penetration of oxygen concentrators in developing and underdeveloped economies is low. Lack of proper healthcare infrastructure, low per capita income, and poor distribution networks are some of the factors responsible for low adoption of oxygen concentrators in underdeveloped countries. Thus, low penetration of these devices is expected to restrict the growth of oxygen concentrator market over the forecast period.

2.1.2.2 HIGH COST OF MEDICAL OXYGEN CONCENTRATORS WITH RESPECT TO MEDICAL CYLINDERS

The cost of an oxygen concentrator is higher as compared to oxygen cylinders. Moreover, buying a concentrator means there is a large upfront cost as a buyer need to pay for the cost of replacement filters, nasal cannulas, and other accessories. Moreover, many developing and under-developed countries still don’t provide insurance coverage for medical devices, hence patients in these countries need to purchase concentrators out-of-pocket. The patients in these countries opt for cylinders, as price is a major deciding factor for them while purchasing oxygen products.

Although Medicare and private insurance companies in the U.S. pay for oxygen products, majority of the time, patients are provided with oxygen cylinders, as they aim to provide care at the lowest possible cost. Also, Medicare does not pay for the purchase or short-term rental of any oxygen concentrator. At such times, the entire cost has to be paid by the patient, and so they opt to buy a cylinder instead of a concentrator. Hence, the high cost is obstructing the market for medical oxygen concentrators.

2.1.3 INDUSTRY CHALLENGE

COPD is one of the leading causes of mortality worldwide, however, a large proportion, i.e., 50% to 90% of the cases remain undiagnosed. There is high prevalence of COPD around the world. In developing countries, signs and symptoms are not evaluated correctly, and most patients overlook early symptoms. It is mostly diagnosed in the last stages, resulting in high mortality.

According to American Lung Association, COPD goes undiagnosed, as people are unaware of the early warning signs of the condition. They usually mistake it for shortness of breath that occurs due to aging and hence refrain from undergoing a medical examination. In low- and mid-income countries, the condition goes undiagnosed due to the absence of well-established healthcare infrastructure, poverty, and low awareness among people. This results in un-diagnosed cases, which is a major challenge for the medical oxygen concentrators and cylinders market.
## 2.2 Medical Oxygen Concentrators & Oxygen Cylinders Market Analysis Tools

### 2.2.1 Medical Oxygen Concentrators & Oxygen Cylinders Market – PESTL Analysis

### Fig. 5 Medical oxygen concentrators & oxygen cylinders market – PESTL analysis

<table>
<thead>
<tr>
<th>Political &amp; Legal</th>
<th>Strengths: Various Initiatives being undertaken by government and nongovernment bodies to increase awareness about lung disorders and ways to manage them by using oxygen therapy products are fueling the market growth.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weaknesses: Poor healthcare infrastructure and low awareness about respiratory health in most underdeveloped and developing economies are expected to hamper market growth.</td>
</tr>
<tr>
<td></td>
<td>Opportunities: Increasing healthcare expenditure to improve healthcare infrastructure and introduction of various programs in different countries each year to spread awareness about COPD &amp; other lung disorders create lucrative growth opportunities for oxygen concentrators &amp; cylinders manufacturers over the forecast period.</td>
</tr>
<tr>
<td></td>
<td>Threats: Some underdeveloped countries are dependent on imports from other nations for obtaining oxygen devices, hence a change in trade policies may pose a threat to this market. In addition, stringent FAA guidelines regarding carrying concentrators in flights are likely to negatively affect small manufacturers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic</th>
<th>Strengths: The rental cost of concentrators &amp; cylinders and their yearly maintenance is affordable. Moreover, the cost is reimbursed under private and public health insurance in many countries. This a major factor driving market growth.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weaknesses: Unavailability of reimbursement for purchasing medical oxygen concentrators may limit market growth.</td>
</tr>
<tr>
<td></td>
<td>Opportunities: Supply of innovative oxygen concentrators such as those with USB connection and cloud-based network connection platforms at affordable prices by major market players has helped increase usage of concentrators in the global market.</td>
</tr>
<tr>
<td></td>
<td>Threats: Increasing competition in the market may put pricing pressure on well-established market players, which may lead to reduction in prices &amp; profits.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technological</th>
<th>Strengths: Development of advanced patient-friendly portable concentrators and cloud-based network connection platforms for concentrators is a key factor likely to fuel market growth. Moreover, launch of oxygen cylinders equipped with alarming system and sensors to monitor patients at regular intervals is a major factor contributing to market growth.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weaknesses: High prices of technologically advanced products and lack of technical assistance for using them in underdeveloped countries may hinder the adoption of new products.</td>
</tr>
<tr>
<td></td>
<td>Opportunities: Increasing need for safe and easy-to-use technology for treatment and management of chronic respiratory diseases, acute respiratory infections, and other respiratory conditions is expected to create lucrative opportunities for players operating in these markets.</td>
</tr>
<tr>
<td></td>
<td>Threats: Low adoption of new technologies related to oxygen concentrators &amp; cylinders in low- and middle-income countries due to lower purchasing power is a serious threat to the market.</td>
</tr>
</tbody>
</table>

Source: GVR Analysis
### Industry Analysis – Porter’s

#### Threat of new entrants – Moderately High

The threat of new entrants in medical oxygen concentrators & oxygen cylinders market is moderately high owing to the low cost of manufacturing oxygen concentrators & cylinders as they are sold at an economical price across the market for a wide variety of applications. Moreover, flexible regulatory framework in some developing countries or absence of regulatory framework in most of the underdeveloped countries further aids in the entry of new players into the market.

#### Competitive rivalry – High

The competitive rivalry in medical oxygen concentrators & oxygen cylinders market is high, due to the presence of a large number of manufacturers in the market. Some global market players such as Invacare Corporation and Koninklijke Philips N.V. have established their presence worldwide by building a strong distribution channel in different regions and building manufacturing centers or offices in multiple locations. Moreover, several local companies also operate in the market. The presence of various regional and international players has resulted in intense competition in the market.

#### Bargaining power of suppliers – Moderate

Manufacturers in the market are diverse and operate from various geographic locations. Thus, there are a large number of OEM suppliers in the market. Moreover, the need to consolidate different OEM parts in a single oxygen concentrator has led manufacturers to source raw materials from different suppliers. Therefore, the bargaining power of suppliers is anticipated to be moderate over the forecast period.

#### Bargaining power of buyers – High

The bargaining power of buyers in medical oxygen concentrators & oxygen cylinders market is high. The products supplied by MNCs are expensive. Thus, end users in developing and underdeveloped countries usually prefer buying low-priced local products due to their limited income. Customers with high purchasing power opt for products as per their oxygen needs.

#### Threat of substitutes – Low

The threat of substitutes in the market is low, as there are limited alternatives available for oxygen concentrators and cylinders. People with a sedentary lifestyle mainly opt for stationary oxygen concentrators for long-term oxygen therapy or oxygen cylinders. Those with an active lifestyle opt for portable concentrators. Substitutes such as oxygen tents and home oxygen machines are being used by people, but their adoption is quite low.

Source: GVR Analysis
## 3.1 Recent Developments & Impact Analysis, by Key Market Participants

### Fig. 7 Medical oxygen concentrators & oxygen cylinders market: Recent developments & impact analysis

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Spearheads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Portfolio</td>
<td>Invacare Corporation, Philips Healthcare, and Inogen, Inc.</td>
</tr>
<tr>
<td>Product Pricing</td>
<td>CAIRE Inc., Inova Labs</td>
</tr>
<tr>
<td>Regional Expansion</td>
<td>Inogen, Inc., Invacare Corporation, and Philips Healthcare</td>
</tr>
<tr>
<td>Acquisition</td>
<td>Invacare Corporation, and Inogen, Inc.</td>
</tr>
</tbody>
</table>

Source: WHO, U.S. CDC, FDA, Investor Presentations, Primary Interviews, Grand View Research
3.2 COVID-19 Pandemic Impact on Global Medical Oxygen Concentrators Market

With rise in the number of people suffering from COVID-19, many healthcare infrastructures are lacking in terms of capacity to treat critically ill patients. There is shortage of hospitals, ICUs, and ventilators as most of the critical cases of COVID-19 require some form of artificial respiratory support. As per the Society of Critical Care Medicine, there will only be enough devices and trained experts to treat 135,000 patients at a time in the U.S.

Due to rapidly growing need for ventilators, scientists are looking for some product substitutes for ventilators to relieve the overburdening of hospitals caused by rapid increase in the number of COVID-19 patients. Owing to this, the demand for wall-mounted oxygen concentrators and piped/canned oxygen is witnessing a significant rise. The same is evident in the recent initiatives undertaken by market participants. For instance, Linde, one of the largest medical gas companies, is rapidly increasing its oxygen production. The company is also working closely with hospitals and providing in-house respiratory care services all across the U.S. The efforts taken by the market participants is expected to address the rapidly increasing need for oxygen concentrators to combat this COVID-19 pandemic.

Some early investigations have suggested that the patients who have recovered successfully from COVID-19 have reported mild lung scarring, which is leading to breathing difficulty and reduced lung functioning. The coronavirus generally affects the lower respiratory tract, owing to which many infected people complain about dry cough and shortness of breath. These recovered patients are now opting for supplemental oxygen to compensate for their reduced lung functioning. Therefore, even after this current pandemic subsides, the market size of oxygen concentrators is likely to expand. However, scientific studies highlighting the reduced lung capacity of recovered patients are limited. Therefore, it is too early to analyze the outcome of this pandemic.

3.3 Opportunity Analysis & Product Substitutes

Increase in the rate of diagnosis and number of hospitalizations due to COVID-19 has driven the need for ventilators. A number of companies in respiratory space are ramping up ventilator production by increasing their production capacities and changing manufacturing lines to support the global demand. This rapidly growing need for ventilators in a relatively small period has put pressure on existing ventilator manufacturers to increase supply. Therefore, government organizations and research institutes are working together on developing ventilator substitutes and makeshift devices to support patients suffering from COVID-19. Moreover, in March 2020, the U.S. FDA eased some of its regulations for certain respiratory devices to combat this pandemic. The new guidance from the U.S. FDA allows limited modifications to FDA-cleared respiratory failure or respiratory insufficiency treatment devices. This will be a major opportunity for manufacturers of sleep apnea devices or oxygen concentrators. As this new guideline allows device manufacturers to repurpose in-home technologies for in-hospital use, such as home CPAP or oxygen concentrators, so that it can be used in hospital settings. Moreover, manufacturers can also update software/hardware tweaks to already cleared devices to enable additional respiratory support to curb this near-term demand.
Furthermore, the use of oxygen therapy in home settings will be a significant opportunity for market participants such as Philips Respironics; Invacare Corporation, Inogen, Inc.; among others, with a wide range of Portable Oxygen Concentrators (POC) and home use concentrators. The use of oxygen concentrators in-home settings will ease hospital overcrowding. Moreover, some Home Medical Equipment (HME) advisory groups are appealing healthcare payers to provide CMS coverage for short-term use of oxygen therapy to beneficiaries with acute conditions, which will help reduce the burden of patients in hospitals. Thus, it is expected to create better opportunities for in-home oxygen concentrator providers and is likely to boost market growth.

Moreover, companies are significantly increasing their manufacturing capacities and training efforts to meet the rising demand. For instance, ResMed, Invacare Corporation, and CAIRE, Inc. are some of the leading companies in the oxygen concentrators market poised to witness vital growth in the next 2-3 quarters of 2020 owing to their large portfolio of respiratory devices. To meet the rapidly increasing global demand, companies are focusing on increasing their masks manufacturing, and ventilator manufacturing capacities. For instance, CAIRE, Inc. extends its production lines in its manufacturing facilities in Buffalo, New York; Ball Ground, Georgia; and Chengdu, China. In addition, ResMed also increased its manufacturing capacity to produce 10 times more masks and 2-3 times the number of ventilators to meet global demand. Therefore, the abovementioned opportunities is anticipated to boost the demand for oxygen concentrators and piped oxygen cylinders in near-term.
CHAPTER 04 Medical Oxygen Concentrators & Oxygen Cylinders Market: Product Type Market Estimates & Trend Analysis

4.1 Product Type Movement Analysis, Revenue (USD Million)

Based on product type, the medical oxygen concentrators & oxygen cylinders market has been segmented into portable medical oxygen concentrators, stationary medical oxygen concentrators and oxygen cylinders. The portable medical oxygen concentrators segment dominated the market in 2019 with a revenue of USD 1,007.5 million, and it is expected to reach USD 1,071.8 million by the end of 2020. There is a sudden rise in revenue share owing to the rapidly growing number of COVID-19 patients. Moreover, growing geriatric population base, increasing adoption of unhealthy lifestyle by younger population such as consumption of cigarettes, marijuana, cigars & pipes, and rising air pollution, leading to COPD and other respiratory disorders, are some major factors expected to boost the usage of oxygen cylinders over the forecast period.

Fig.8 Medical oxygen concentrators & oxygen cylinders market: Product type movement analysis

<table>
<thead>
<tr>
<th>Product Type</th>
<th>2019 Revenue (USD Million)</th>
<th>2026 Revenue (USD Million)</th>
<th>Incremental Opportunity (USD Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portable Oxygen Concentrators</td>
<td>1,007.5</td>
<td>1,433.7</td>
<td>426.2 million</td>
</tr>
<tr>
<td>Stationary Medical Oxygen Concentrators</td>
<td>846.9</td>
<td>954.7</td>
<td>107.7 million</td>
</tr>
<tr>
<td>Oxygen Cylinders</td>
<td>1,006.8</td>
<td>1,323.8</td>
<td>317.0 million</td>
</tr>
</tbody>
</table>

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
4.2 Product Type Movement Analysis, Volume (Units)

Fig. 9 Medical oxygen concentrators & oxygen cylinders market: Product type movement analysis

4.2.1 PORTABLE OXYGEN CONCENTRATOR

Portable oxygen concentrators are expected to grow at a lucrative CAGR over the forecast period. These devices are utilized for obtaining oxygen of higher concentrations than that present in normal levels of ambient air. This device is mostly feasible for travelers and active patients, as it is smaller in size, improves mobility, and has higher oxygen carrying capacity.

Moreover, increasing prevalence of respiratory disorders, such as asthma, COPD, pneumonia, and others is expected to boost usage of portable oxygen concentrators over the forecast period. Furthermore, rise in the number of air travelers and increasing approvals for portable concentrators from the Federal Aviation Administration (FAA) is expected to drive the portable oxygen concentrators market.
4.2.1.1 **GLOBAL PORTABLE OXYGEN CONCENTRATORS MARKET, 2019 & 2026 (USD MILLION)**

**Fig. 10** Global portable oxygen concentrators market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

4.2.1.2 **GLOBAL PORTABLE OXYGEN CONCENTRATORS MARKET, 2019 & 2026 (UNITS)**

**Fig. 11** Global portable oxygen concentrators market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
4.2.2 STATIONARY OXYGEN CONCENTRATOR

Stationary oxygen concentrators are expected to grow with a CAGR of 1.8% over the forecast period. These concentrators are mainly used by patients during bedtime when body movements are limited. In addition, older people with limited movements opt for these devices. Hence, its adoption in countries with a large geriatric population is increasing.

These concentrators have higher weight as compared to portable concentrators, as they generate oxygen in large quantities. Moreover, stationary oxygen concentrators are more economical and, hence, their adoption is higher in developing and underdeveloped countries, where healthcare expenditure and standard of living are still low.

4.2.2.1 GLOBAL STATIONARY OXYGEN CONCENTRATORS MARKET, 2019 & 2026 (USD MILLION)

![Graph showing the stationary oxygen concentrators market, 2019 & 2026 (USD Million)]

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
4.2.2.2 GLOBAL STATIONARY OXYGEN CONCENTRATORS MARKET, 2019 & 2026 (UNITS)

The oxygen cylinders segment includes both portable tank based oxygen cylinders and centralized oxygen supply cylinders (including bedside, operating rooms oxygen supply). Oxygen cylinders are expected to grow with a CAGR of 4.2% over the forecast period. Factors aiding their market growth are purity of oxygen supplied by them and their simple structure. Oxygen cylinders, when compared to concentrators, have finite oxygen supply. However, they do not require any battery to operate. In addition, the oxygen supplied by the oxygen cylinders has higher purity, as compared to that supplied by concentrators. The purity is never below 99.6%, regardless of the flow rate, but in concentrators, flow rate affects the purity of oxygen.

Their weight is comparably higher than that of concentrators. However, the development of composite lightweight cylinders in the market is likely to lower this shortcoming. This is likely to fuel market growth over the forecast period.
4.2.3.1 GLOBAL OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 14 Global oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

4.2.3.2 GLOBAL OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 15 Global oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
CHAPTER 05 Medical Oxygen Concentrators & Oxygen Cylinders Market: End User Market Estimates & Trend Analysis

5.1 Medical Oxygen Concentrators & Oxygen Cylinders Market: End User Analysis

Based on end user, the medical oxygen concentrators & oxygen cylinders market has been segmented into home care and non homecare. Home care segment dominated the overall market in 2019 in terms of revenue share at over 56.4% owing to rising demand for home healthcare oxygen therapies. Furthermore, rising demand for pure oxygen supply in polluted environment, and technological advancements are expected to contribute to the market growth over the forecast period. However, there is a spike in the non-homecare segment in the year 2020 due to the sudden outbreak of COVID-19 all across the world, which has increased the demand for supplemental oxygen therapy products such as wall-mounted and repurpose home oxygen equipment to combat against this pandemic.

5.2 End User movement analysis, Revenue (USD Million)

Fig.16  Medical oxygen concentrators & oxygen cylinders market: End user movement analysis

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

Home Care segment: Overall gain of 298 BPS between 2019 & 2026
Total incremental opportunity, USD 590.6 million between 2019 & 2026

Non-home Care segment: Overall gain of 298 BPS between 2019 & 2026
Total incremental opportunity, USD 260.3 million between 2019 & 2026
5.3 End User movement analysis, Volume (Units)

![End User movement analysis, Volume (Units)](image)

5.3.1 HOMECARE

Homecare dominated the market in 2019, with a revenue of USD 1,613.5 million and is expected to grow at a fastest CAGR over the forecast period. Technological advancements, improving standard of living, and growing usage of home-based therapy, especially in developed regions, such as North America & Europe, are the major factors driving market growth. Moreover, a large geriatric population in countries such as Germany, Japan, Italy, Monaco, Austria, and others is expected to further drive market growth over the forecast period. In addition, increase in healthcare insurance coverage for oxygen concentrators and cylinders in many countries is further fueling market growth.

The growing prevalence of COPD is another major factor influencing growth. For instance, according to the Global Burden of Disease Study report, the prevalence of COPD was 251 million in 2016, and the number is increasing steadily every year. COPD is not curable and can only be managed by continuous use of oxygen.
5.3.1.1 GLOBAL HOMECARE MARKET, 2019 & 2026 (USD MILLION)

Fig. 18 Global homecare market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

5.3.1.2 GLOBAL HOMECARE MARKET, 2019 & 2026 (UNITS)

Fig. 19 Global homecare market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
5.3.2 NON-HOMECARE

The non-homecare segment mainly includes use of oxygen therapy products outside home settings, such as in hospitals & clinics and during travel. The segment is anticipated to grow with a CAGR of 2.5% over the forecast period. Factors influencing this market growth are rise in the number of hospitals & other healthcare settings and high per capita healthcare expenditure in North America & Europe.

Moreover, increasing air travel by passengers suffering from breathing problems and rising outdoor recreational activities, that require supplementary oxygen are factors expected to fuel growth of this segment over the forecast period.

5.3.2.1 GLOBAL NON-HOMECARE MARKET, 2019 & 2026 (USD MILLION)

![Graph showing the global non-homecare market, 2019 & 2026 (USD Million)]

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

5.3.2.2 GLOBAL NON-HOMECARE MARKET, 2019 & 2026 (UNITS)

![Graph showing the global non-homecare market, 2019 & 2026 (Units)]

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
CHAPTER 06 Medical Oxygen Concentrators & Oxygen Cylinders Market: By Technology Market Estimates & Trend Analysis

6.1 Medical Oxygen Concentrators & Oxygen Cylinders Market: Technology Analysis

Based on technology, the medical oxygen concentrators & oxygen cylinders market has been segmented into home care and non homecare. Continuous flow technology segment dominated the market in 2019, in terms of revenue share at over 87.0%. This is due to rapid technological advancement pertaining to new product development, which is expected to boost the usage of medical oxygen concentrators. Furthermore, ongoing use of respiratory equipment for oxygen therapies is anticipated to boost the market growth. Pulse dose technology in oxygen concentrators is expected to witness the fastest growth over the forecast period owing to its technological advancement and more suitable for the patient who take 450 mL to 1250 mL per minute of oxygen in short pulses.

6.2 Technology Movement Analysis, Revenue (USD Million)

![Fig 22: Medical oxygen concentrators & oxygen cylinders market: Product type movement analysis](image)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

- Continuous Flow
- Pulse Flow

High
Medium
Low
Low
Medium
High
1,612.7
1,924.6
241.7
347.4

75% 80% 85% 90% 95% 100%

Pulse flow segment: Overall gain of 226 BPS between 2019 & 2026
Total incremental opportunity, USD 105.7 million between 2019 & 2026

Continuous flow segment: Overall gain of 226 BPS between 2019 & 2026
Total incremental opportunity, USD 311.9 million between 2019 & 2026

- Continuous Flow
- Pulse Flow
6.3 Technology Movement Analysis, Volume (Units)

Pulse flow technology is anticipated to grow at a fastest CAGR over the forecast period. The technology is more efficient and convenient as compared to continuous flow. It is mostly suitable for users with an active lifestyle; hence, working professionals, regular air travelers, and sports players suffering from COPD or other breathing issues opt for these devices.

The pulse flow setting is based on an individual breathing rate and the intensity of each breath. The technology provides the user a dose of oxygen and then goes into rest mode until the user takes the next breath. Patients prefer this method, as the devices are usually small, compact, and can be easily carried from one place to another, making them travel friendly. These devices are also very convenient for air travels as the user can customize their pulse requirements. Hence, manufacturers are launching FAA-approved pulse flow oxygen concentrators in the market. This is expected to drive the market further over the forecast period.

Companies such as Inogen Inc., Philips Respironics, and others are providing oxygen concentrators with pulse settings.
6.3.1.1 GLOBAL PULSE FLOW MARKET, 2019 & 2026 (USD MILLION)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

6.3.1.2 GLOBAL PULSE FLOW MARKET, 2019 & 2026 (UNITS)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research
6.3.2 CONTINUOUS FLOW

The continuous flow oxygen technology is expected to grow at a CAGR of 2.8% over the forecast period. A continuous flow setting is most suitable for users with minimal or limited activities. Hence, this type of setting is mostly seen in stationary, home-based devices. The elderly population and bedridden patients are the main targeted group for continuous flow oxygen concentrators. In addition, the devices are not fitted with any breath detection technology, hence they are cheaper as compared to pulse flow oxygen technology.

However, in this technology, a large quantity of oxygen is wasted, as the concentrators with this setting do not have any storage for oxygen conservation. In addition, they have a comparatively shorter battery life as compared to pulse flow oxygen concentrators. Moreover, pulse technology cannot detect shallow breathing during sleep, which renders the user uncomfortable at night. Hence, patients mostly opt for continuous flow settings.

Companies such as Inogen, Philips Respironics, Caire Inc. and others are providing oxygen concentrators with continuous flow settings.

6.3.2.1 GLOBAL CONTINUOUS FLOW MARKET, 2019 & 2026 (USD MILLION)

![Fig.26 Global continuous flow market, 2019 & 2026 (USD Million)](chart)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

USD 311.9 Mn
Incremental Opportunity

2019: 1,612.7
2026: 1,924.6

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**6.3.2.2 GLOBAL CONTINUOUS FLOW MARKET, 2019 & 2026 (UNITS)**

Fig. 27: Global continuous flow market, 2019 & 2026 (Units)

![Bar chart showing the continuous flow market for 2019 and 2026](image)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research

198,398 Units Incremental Opportunity

895,811 Units in 2019

1,094,209 Units in 2026
7.1 Medical Oxygen Concentrators & Oxygen Cylinders Market: Regional Movement Analysis

In 2019, North America dominated the market in terms of the revenue share and was valued at USD 926.1 million. The growing prevalence of COPD, increasing geriatric population, and advancement in technology for oxygen therapy are driving the usage of such oxygen supplying devices amongst people in the U.S. are the key factors attributing to the highest revenue share. On the other hand, Asia Pacific is expected to grow at the fastest CAGR over the forecast period, owing to rising prevalence of various respiratory diseases.

Fig. 28 Medical oxygen concentrators & oxygen cylinders market: Country movement analysis (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.2 North America

North America medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 3.3% over the forecast period. Increasing geriatric population in the region is one of the significant drivers attributing to its large share. This demographic is prone to various respiratory disorders due to weaker immunity system and low oxygen intake capacity.

Furthermore, government initiatives such as the authorized use of portable oxygen concentrators during air travel by the Federal Aviation Administration (FAA) and increasing prevalence of severe Chronic Obstructive Pulmonary Disorder (COPD) due to unhealthy lifestyle are the factors contributing to its leading share. Additionally, rapid technological developments, increasing disposable income, local presence of key global players, and favorable reimbursement policies are expected to boost demand during the forecast period.

7.2.1 North America Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (USD Million)

![North America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)](chart)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.2.2 NORTH AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

The U.S. accounted for major share in the North American medical oxygen concentrators & oxygen cylinders market. It is expected to grow with a CAGR of 3.4% over the forecast period. Factors driving market growth include a well-established healthcare infrastructure, government initiatives supporting better healthcare services, and favorable reimbursement policies. Moreover, the increasing prevalence of respiratory disorders such as asthma, COPD, chronic bronchitis, and lung cancer, due to smoking, negative lifestyle choices, and various environmental conditions, is expected to drive market growth.

Some of the key players operating in the market space are DeVilbiss Healthcare LLC; Nidek Medical Products, Inc.; Respironics, Inogen Inc., and Invacare Corporation. These players have created a strong presence in the country by creating a wide distribution channel and establishing manufacturing plants in multiple locations. They have sponsored clinical trials on oxygen concentrators & cylinders and have invested heavily in R&D of their products. This is further driving market growth.

The cases of novel coronavirus (COVID-19) are rising with an alarming rate affecting almost all the states in the U.S. As of 15 April 2020, there were 632,548 total cases of novel coronavirus (COVID-19), in the country, out of these 632,220 cases are confirmed cases as per the Centre of Disease & Prevention (CDC). Around 35 States in the U.S. are under community transmission, and 12 States have more than 10,000 COVID-19 affected patients. Moreover, the U.S. has registered more than 138,475 total deaths due to coronavirus as of 15 April 2020. On studying the daily cases, we can deduce that the incidence rate of COVID-19 in the U.S. has reached its peak and the country is expected to witness gradual decrease in the daily new cases in second quarter of year 2020.
7.2.3.1 U.S. Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.2.3.2 U.S. Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.2.4 CANADA

Canada medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 2.5% over the forecast period. Factors affecting market growth are a strong distribution channel established by U.S. manufacturers that extends into the country and an increasing prevalence of respiratory disorders in the county.

Furthermore, technological advancements and new product developments, including those that enhance battery life of medical concentrators and provide easy mobility of these devices, are expected to provide major growth opportunities. Additionally, the increasing demand for medical oxygen supply in hospital or prehospital settings to manage emergency cases is among key factors driving market growth for oxygen cylinders.

As of 16 April 2020, there were 18,321 total number of confirmed cases of COVID-19 in the country, as per the Public Health Agency of Canada. The country has registered an overall case mortality rate of 3.6%, with around 1,048 deaths to date. The rate of doubling of reported cases in Canada has changed from every 3-4 days from March 12 to March 28 to approximately every 5-8 days from March 29 to April 10. Thus, we can deduce that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decrease in the daily new cases in the second quarter of the year 2020.

7.2.4.1 CANADA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

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**Fig.33 Canada medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)**

![Graph showing the medical oxygen concentrators & oxygen cylinders market in Canada from 2019 to 2026. The market is expected to increase from USD 127.5 Mn in 2019 to USD 151.3 Mn in 2026.](chart)

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Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.2.4.2 CANADA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 34: Canada medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3 Europe

Europe medical oxygen concentrators & portable cylinders market is expected to grow at a CAGR of 3.6% over the forecast period. A major factor driving market growth in this region is the increasing prevalence of COPD. According to data published by European COPD Coalition (ECC) in 2014, the prevalence of COPD has been increasing in Europe, with approximately 300,000 deaths reported each year. This is creating a strong demand for medical oxygen concentrators and portable cylinders.

Moreover, the increased life expectancy of citizens in the Europe has further given increased the demand for oxygen therapy products, as the geriatric population is more prone to breathing problems and, therefore, reliant on oxygen therapy products for proper breathing. This is expected to drive the market for medical oxygen concentrators & portable cylinders in the region.
### 7.3.1 EUROPE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

*Fig. 35 Europe medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)*

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

### 7.3.2 EUROPE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

*Fig. 36 Europe medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)*

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.3.3 UK

The UK medical oxygen concentrator and oxygen cylinders market is expected to grow at a CAGR of 2.0% over the forecast period. The oxygen therapy market in the UK is monopolistic, which is led by a limited number of suppliers, providing their devices in limited allocated regions. For instance, Air Liquide supplies devices in London, North West England, East Midlands, and South West England. Baywater Healthcare provides devices in Yorkshire and Humberside, West Midlands, and Wales. BOC provides devices to East & North East England and Northern Ireland. Dolby Vivisol provides devices in Southern England and Scotland.

Moreover, patients are provided with oxygen therapy products by governments as they are covered under NHS. However, patients can also purchase them, so long as the product is NHS-approved. These stringent approval norms in the country are obstructing market growth.

As of 15 April 2020, there were 93,873 total number of confirmed cases of COVID-19 in the UK, as per the Global Change Data Lab. Moreover, the country has registered a total of 12,868 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 in the country have started declining and is expected to witness a gradual decrease in the daily new cases in the second quarter of the year 2020.

7.3.3.1 UK Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (USD Million)

![Graph showing the medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million).](image)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.3.3.2 UK Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (Units)

![Graph showing the medical oxygen concentrators & oxygen cylinders market in the UK from 2019 to 2026.](source)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3.4 Germany

Germany medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 3.4% over the forecast period. Major factors driving market growth in this region include the large-scale industrialization that has significantly increased air pollution. According to Federal Environment Agency (UBA) in 2018, 57 German cities exceeded the level of air pollution set by the EU. This high level of pollution has created inadequacy of pure oxygen, owing to which people suffering from respiratory problems have started depending on medical oxygen concentrators.

Moreover, increase in the number of hospitals that provide modern and high-quality health services has improved the demand for oxygen cylinders. In addition, the availability of private and public health insurance in the country has boosted the demand for medical oxygen concentrators & cylinders.

As of 15 April 2020, there were 127,584 total number of confirmed cases of COVID-19 in Germany and registered a total of 3,804 deaths due to coronavirus as of 15 April 2020. Germany has registered a very low mortality rate due to the early preventive measures taken by the country. According to our research, we can assume that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decrease in the daily new cases during the mid of second quarter of the year 2020.
7.3.4.1 GERMANY MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 39 Germany medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3.4.2 GERMANY MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 40 Germany medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.3.5 FRANCE

France medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 2.9% over the forecast period. Factors influencing market growth include the presence of key market players in the region, including AirSep, DeVilbiss Healthcare, Inogen, Invacare Precision Medical, & Phillips Respironics, along with the presence of a strong distribution channel and high healthcare expenditure.

Moreover, increase in outdoor recreational activities such as hiking and climbing activities at high altitudes where oxygen supply is limited has created a strong demand for oxygen cylinders.

As of 15 April 2020, there were 103,573 total number of confirmed cases of COVID-19 in France. Moreover, the country has registered a total of 17,167 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decline in the daily new cases during the mid of second quarter of the year 2020.

7.3.5.1 FRANCE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig.41 France medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.3.5.2 FRANCE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3.6 ITALY

Italy medical oxygen concentrators & oxygen cylinders market is expected to grow at 4.6% over the forecast period. Rise in outdoor recreational and adventure activities—such as scuba diving, heliskiing, cave-diving, and hiking—which demand oxygen cylinders for breathing have increased, creating an increase in demand for oxygen cylinders in the country.

Italy has one of the largest populations of people aged 65 and over, owing to high life expectancy that has further increased by 20 years in the recent past. This large aging population is likely to create a strong demand for oxygen concentrators, as it is prone to develop various breathing issues. Also, rising medical tourism in the country is likely to boost the demand for oxygen concentrators and cylinders over the forecast period.

Italy accounted for highest number COVID-19 cases in the Europe. As of 15 April 2020, there were 162,488 total number of confirmed cases of COVID-19 and registered a total of 21,645 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decline in the daily new cases during the mid of second quarter of the year 2020.
7.3.6.1 ITALY MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig 43 Italy medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3.6.2 ITALY MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig 44 Italy medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
### 7.3.7 SPAIN

Spain medical oxygen concentrators & oxygen cylinders market is expected to grow at 5.1% over the forecast period. Factors influencing market growth are increased elderly population and increasing prevalence of chronic respiratory disorders in the country. According to the State of Health in EU-Spain Health Profile 2017, life expectancy in Spain reached 83.0 years in 2015 and is currently the highest among EU countries.

Respiratory disorders, including asthma, COPD, and lung cancer, form the third leading cause of deaths in Spain. This is likely to boost the demand for oxygen concentrators and cylinders in the country. However, majority of COPD cases still go undiagnosed in the country, which is likely to impede market growth over the forecast period.

As of 15 April 2020, there were 172,541 total number of confirmed cases of COVID-19 in Spain, as per the Global Change Data Lab. Moreover, the country has registered a total of 18,812 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decline in the daily new cases during the mid of second quarter of the year 2020.

#### 7.3.7.1 SPAIN MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (USD Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>70.1</td>
</tr>
<tr>
<td>2026</td>
<td>93.8</td>
</tr>
</tbody>
</table>

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.3.7.2 Span Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (Units)

Fig. 46 Spain medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3.8 Russia

Russia medical oxygen concentrators & oxygen cylinders market is expected to grow at 4.7% over the forecast period. At present, Russia is witnessing a high prevalence of COPD, the diagnosis of which largely gets delayed. This can lead to disease progression, creating a greater necessity for medical oxygen concentrators & cylinders to support breathing.

In addition, increasing geriatric population requiring continuous oxygen supply is expected to fuel the demand for medical oxygen concentrators over the forecast period. Some of the key players in the region are GCE Group, GRASYS JSC, and MEDOZONS Ltd.

As of 15 April 2020, there were 21,102 total number of confirmed cases of COVID-19 in Russia, as per the Global Change Data Lab. Moreover, the country has registered a total of 198 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing and is expected to witness a gradual increase in the daily new cases in the second quarter of the year 2020.
7.3.8.1 RUSSIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 47 Russia medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.3.8.2 RUSSIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 48 Russia medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.4 Asia Pacific

Asia Pacific region is expected to grow at the fastest CAGR over the forecast period. Key factors driving market growth include rapidly increasing geriatric population and prevalence of lung disorders. It is estimated that by 2050, one in every four people in the region will be over 60 years of age. Moreover, the geriatric population in Asia Pacific is expected to increase at a rapid pace between 2010 and 2050 to reach approximately 1.3 billion.

In the more developed economies of the region, living and health standards have increased significantly. Increase in life expectancy, healthcare expenditure, and awareness regarding available technologies are some of the factors expected to contribute to market growth over the forecast period.

Some of the key players operating in this market are Advanced Technocracy Inc.; Goodhealth Inc.; ATICO Medical Pvt. Ltd.; Silverline Meditech Private Limited and Nexus Lifecare Pvt. Ltd.

7.4.1 Asia Pacific Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (USD Million)

Fig 49  Asia Pacific medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

< Back to Table of Contents
7.4.2 ASIA PACIFIC MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 50  Asia Pacific medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.4.3 JAPAN

Japan medical oxygen concentrators & oxygen cylinders market is expected to grow at 5.7% over the forecast period. Key factors influencing market growth include rapidly increasing geriatric population and high life expectancy. As per the Statistics Bureau of Japan, in 2017, 27.7% of the population in the country was above 65 and is expected to reach 31.2% by 2030. The elderly population is prone to develop respiratory disorders and have trouble breathing which is expected to drive the market for medical concentrators in the region.

Rapid technological advancements and emergence of new distribution modalities that leverage home healthcare services are key factors contributing to market growth. In Japan, there has been a considerable improvement in the financial capability of the elderly to support themselves, owing to public pension system expansion, availability of universal medical insurance and Long-Term Care Insurance (LTCI) in the country. This is expected to increase healthcare expenditure and drive the market for medical oxygen concentrators in the country. Moreover, the increase in adventure activities such as mountaineering and trekking is likely to boost the demand for oxygen cylinders.

As of 15 April 2020, there were 8,100 total number of confirmed cases of COVID-19 in the country. Moreover, Japan has registered a total of 178 deaths, due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing. However, the presence of well-established healthcare infrastructure is expected to restraint the growth in daily cases. Thus, the country is expected to witness a gradual decrease in the daily new cases in the second quarter of the year 2020.
7.4.3.1 Japan Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (USD Million)

Fig 51. Japan medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.4.3.2 Japan Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (Units)

Fig 52. Japan medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

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< Back to Table of Contents
7.4.4 CHINA

China medical oxygen concentrators & oxygen cylinders is expected to grow at 5.4% over the forecast period. The prevalence of COPD is very high in China, with about 8.6% of the total population suffering from it. According to a study conducted by Tulane University in 2018, approximately 100 million people in China are suffering from chronic lung disease. The population is aging at a rapid rate in China and the geriatric population is prone to several respiratory disorders. This is expected to fuel the demand for oxygen concentrators and cylinders in China. The increase in online sales of oxygen products is further influencing market growth in the country.

The healthcare expenditure in China is expected to increase over the coming years, which can positively affect market growth. However, the Chinese market is less regulated as compared to that in the U.S. Companies can produce low quality versions of medical concentrators and cylinders of their American counterparts. Hence, people avoid buying off-brand oxygen concentrators in China. This is likely to disrupt the Chinese market and affect medical device exports. Some of the key companies operating in Chinese medical oxygen concentrator market are Chart Industries; GCE Group; and Koninklijke Philips N.V.; Invacare Corporation; Dynmed Medical Technology Co. Ltd; and Yantai Kangbeier Medical Appliances Co. Ltd.

China was the first country which got affected by COVID-19. As of 15 April 2020, there were 83,325 total number of confirmed cases of COVID-19 in the country. Moreover, the country has registered a total of 3,342 deaths due to coronavirus as of 15 April 2020. According to our research, the incidence rate of COVID-19 in the country has reached its peak in the mid of the first quarter and is expected to witness a constant decrease in the daily new cases from the start of the second quarter of the year 2020.

7.4.4.1 CHINA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 53 China medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

USD 59.3 Mn
Incremental Opportunity

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
### 7.4.4.2 China Medical Oxygen Concentrators & Oxygen Cylinders Market, 2019 & 2026 (Units)

#### Fig. 54

China medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

#### 7.4.5 India

India medical oxygen concentrators & oxygen cylinders market is expected to grow with a CAGR of 5.9% over the forecast period. Prevalence of respiratory diseases such as COPD, asthma, allergic rhinitis, and rhinosinusitis is increasing in India, which is expected to increase the number of patients and boost the demand for oxygen concentrators & oxygen cylinders. Price is a major deciding factor in the country and hence, the demand for low-priced oxygen concentrators and cylinders is high. Stationary oxygen concentrators are preferred over portable concentrators in the country due to their lower prices. A portable oxygen concentrator are nearly 3 times more expensive than stationary oxygen concentrators.

Some of the medical oxygen concentrators available in the Indian market are Caire Inc., Philips Respironics, Invacare, DeVilbiss, and SeQual Portables. AirSep, Philips Respironics, and Nidek Medical are most preferred oxygen concentrators, while DeVilbiss is dominant in only a few cities. Apart from these, various Chinese brands are also available in the Indian market.

As of 15 April 2020, India has registered around 11,438 total number of confirmed cases of COVID-19. Moreover, the country has registered a total of 422 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is progressively increasing and is expected to witness a slight decrease in the daily new cases in the latter half of the second quarter of the year 2020.
**7.4.5.1  INDIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)**

*Fig. 55  India medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)*

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

**7.4.5.2  INDIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)**

*Fig. 56  India medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)*

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.4.6 SOUTH KOREA

South Korea medical oxygen concentrators & oxygen cylinders market is expected to grow at 4.5% over the forecast period. According to an article by Allergy Asthma Immunol Research in 2016, respiratory disorders were one of the leading causes of mortality in South Korea. The prevalence of COPD, asthma, Allergic Rhinitis (AR), and rhinosinusitis is also increasing to become a major health priority in Korea. As per the South Korea Census Statistics, the population above 65 years of age was at 6.8 million in 2016, which constituted nearly 13.6% of the total population. The aging population is prone to developing respiratory disorders and breathing issues, propelling the demand for medical oxygen concentrators and cylinders in the country.

As of 15 April 2020, there were 10,591 total number of confirmed cases of COVID-19 in South Korea, as per the Global Change Data Lab. Moreover, the country has registered a total of 225 deaths due to coronavirus as of 15 April 2020. According to our research, we can assume that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decrease in the daily new cases in the first half of the second quarter of the year 2020.

7.4.6.1 SOUTH KOREA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

![Graph showing the medical oxygen concentrators & oxygen cylinders market for South Korea in 2019 and 2026]

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.4.6.2 SOUTH KOREA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig 58 South Korea medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.4.7 SINGAPORE

Singapore medical oxygen concentrators & oxygen cylinders market is expected to grow at 5.1% over the forecast period. Major factors driving the market growth include the increasing scope of medical tourism in the country and improving healthcare infrastructure. The number of healthcare institutions is expected to increase by 2030. In addition, increased healthcare spending by the government is expected to drive market growth. For instance, in 2017, the Singapore government allocated around USD 10.7 million toward healthcare, and it is expected invest up to USD 13.7 billion by 2020.

As of 15 April 2020, there were 3,252 total number of confirmed cases of COVID-19 in the country, as per the Global Change Data Lab. Moreover, the country has registered a total of 10 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing and is expected to witness a steady decrease in the daily new cases in the latter half of the second quarter of the year 2020.
7.4.7.1 SINGAPORE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig 59 Singapore medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.4.7.2 SINGAPORE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig 60 Singapore medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.4.8 AUSTRALIA

Australia medical oxygen concentrators & oxygen cylinders market is expected to grow at 7.5% over the forecast period. Factors influencing market growth include the increase in number of ocean rafting and scuba diving activities and increasing healthcare expenditure. According to the Australian Institute of Health and Welfare, the total healthcare expenditure in the country increased by 4.8% from 2006 to 2007 and was reported to be USD 170 billion in 2015-2016.

Increasing prevalence of COPD and other lung disorders in the county is further expected to fuel demand for oxygen concentrators and cylinders as long-term oxygen therapy helps patients manage day-to-day activities. In Australia, long-term oxygen therapy is mostly delivered at home using oxygen concentrators, whereas oxygen cylinders are provided for short-term relief. Owing to this, the demand for oxygen concentrators is likely to remain greater than that for cylinders.

As of 15 April 2020, there were 6,416 total number of confirmed cases of COVID-19 in Australia. Moreover, the country has registered a total of 63 deaths due to coronavirus as of 15 April 2020. According to our research, we can assume that the incidence rate of COVID-19 in the country has reached its peak and is expected to witness a gradual decrease in the daily new cases in the first half of the second quarter of the year 2020.

7.4.8.1 AUSTRALIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

![Graph showing medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)]

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

Incremental Opportunity
7.5 Latin America

Latin America medical oxygen concentrators & oxygen cylinders market is anticipated to grow at a CAGR of 4.4% over the forecast period. The incidence of COPD and other respiratory problems in the country is lower than that in the U.S. or Europe but is increasing at a considerable rate. This is attributed to the increase in smokers and tobacco consumption. Concerted efforts have been taken to overcome these issues, which are expected to drive the market during the forecast period. The prominent role of technological developments is equally expected to propel market growth.

However, slow growth of home healthcare service providers and insufficient infrastructure are barriers that may impede the ability of many Latin American countries to access timely and optimal care in diagnostic procedures.
7.5.1 LATIN AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 63  Latin America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.5.2 LATIN AMERICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 64  Latin America medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.5.3 BRAZIL

Brazil medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 4.7% over the forecast period. Major factors driving market growth include increase in tobacco use and the resultant increase in prevalence of various lung disorders, along with the increasing geriatric population. COPD remains largely underdiagnosed and undertreated, owing to obstacles in prompt diagnostics posed by the healthcare system and limited access to medications. Meanwhile, the increase in healthcare expenditure and improvements in healthcare infrastructure are likely to boost the demand for oxygen cylinders over the forecast period.

As of 15 April 2020, there were 25,262 total number of confirmed cases of COVID-19 in Brazil. Moreover, the country has registered a total of 1,757 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing and is expected to witness a steady decrease in the daily new cases in the latter half of the second quarter of the year 2020.

7.5.3.1 BRAZIL MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

![Graph showing the market for medical oxygen concentrators and oxygen cylinders in Brazil from 2019 to 2026](Fig.65 Brazil medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million))

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.5.3.2 BRAZIL MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig 66 Brazil medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.5.4 MEXICO

Mexico medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 4.6% over the forecast period. Major factors driving market growth include increasing incidence of chronic respiratory disorders and growth in number of distribution channels by key U.S. players. Some of the key distributors operating in Mexico are Respironics, ResMed, and GCE Group.

As of 15 April 2020, there were 5,399 total number of confirmed cases of COVID-19 in Mexico. Moreover, the country has registered a total of 406 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is progressively increasing and is expected to witness a gradual increase in the daily new cases in the second quarter of the year 2020.
7.5.4.1 MEXICO MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 67 Mexico medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

USD 15.2 Mn Incremental Opportunity

2019: 42.4
2026: 57.6

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.5.4.2 MEXICO MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 68 Mexico medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

124,906 Units Incremental Opportunity

2019: 165,543
2026: 239,591

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.5.5 ARGENTINA

Argentina medical oxygen concentrators & cylinders market is expected to grow at a CAGR of 3.8% over the forecast period. Increasing healthcare spending is expected to fuel the demand for oxygen concentrators & cylinders over the forecast period. Moreover, Argentina’s healthcare system is experiencing improvements due to the changes in economic and political environment over the recent years. The new trade policies have also reduced import restrictions on medical products and equipment. In 2015, Argentina imported about 27% of its medical devices from the U.S. Argentina is considered to have better growth opportunities as compared to other Latin American countries. The country has fewer medical device manufacturers and most of its medical devices are imported from other countries. About 75% of the medical devices used in Argentina are imported and only 25% are manufactured locally. The lower number of local players creates a major opportunity for international players. Companies such as Respironics have a strong regional presence in Argentina, along with a large number of importers who provide a variety of products.

As of 15 April 2020, there were 2,432 total number of confirmed cases of COVID-19 in the country, as per the Global Change Data Lab. Moreover, the country has registered a total of 112 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing and is expected to witness a slight decrease in the daily new cases in the latter half of the second quarter of the year 2020.

7.5.5.1 ARGENTINA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 69  Argentina medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.6 MEA

MEA is expected to grow at a rational rate over the forecast period. Economic development and increasing healthcare expenditure are key factors contributing toward market growth.

While life expectancy in MEA has increased considerably over the years, the population is facing issues such as the increasing prevalence of chronic diseases, diet-related risk factors, and deaths from accidents & road injuries. These factors, coupled with and an increase in the aging population, are likely to drive the market over the forecast period. Moreover, respiratory disorders such as lung cancer, tuberculosis, and asthma are increasing, owing to increasing consumption of tobacco, extreme weather variations, and genetic conditions. The rising prevalence of tobacco smoking and obesity in the region due to sedentary lifestyle and the associated lung diseases with them are presenting a major health burden on the medical system in the region. This increasing prevalence of related diseases are expected to create a strong demand for medical oxygen concentrators and cylinders over the forecast period.
7.6.1 MEA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig 71 MEA medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.6.2 MEA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig 72 MEA medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.6.3 SOUTH AFRICA

South Africa medical oxygen concentrators and cylinders market is expected to grow at a CAGR of 4.3% over the forecast period. South Africa is the largest and most developed economy in Africa and consists of a large geriatric population. According to Statistics South Africa, the population of elderly citizens (60 years and above) was 4.6 million in 2017, and the number is expected to grow. Moreover, life expectancy in the region has increased owing to improving healthcare infrastructure, which is likely to further boost the demand for oxygen cylinders and concentrators in the country.

As of 15 April 2020, there were 2,415 total number of confirmed cases of COVID-19 in the country. Moreover, the country has registered a total of 34 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 in the country have reached its peak and is expected to witness a gradual decrease in the daily new cases in the second quarter of the year 2020.

7.6.3.1 SOUTH AFRICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

![Graph showing the 2019 and 2026 market for medical oxygen concentrators and oxygen cylinders in South Africa with an incremental opportunity of USD 10.6 Mn between 2019 and 2026.]

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.6.3.2 SOUTH AFRICA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

7.6.4 UAE

UAE medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 4.5% over the forecast period. Increase in factors such as urbanization, reliance on motorized transportation & resultant traffic congestion, adverse weather conditions that increase dust & sand in the air, and rapid expansion of the construction & manufacturing sectors that emit airborne pollutants have given rise to various respiratory disorders such as asthma and bronchitis. This is likely to create a strong demand for oxygen concentrators over the forecast period. Moreover, increase in the number of hospitals and improvement of healthcare infrastructure to achieve UAE’s Vision 2021 is likely to boost the demand for oxygen cylinders and concentrators in the country.

As of 15 April 2020, there were 4,933 total number of confirmed cases of COVID-19 in the country, as per the Global Change Data Lab. Moreover, the country has registered a total of 33 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing and is expected to witness a slight decrease in the daily new cases in the latter half of the second quarter of the year 2020.
7.6.4.1 UAE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

Fig. 75 UAE medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (USD Million)

USD 5.04 Mn Incremental Opportunity

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis

7.6.4.2 UAE MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

Fig. 76 UAE medical oxygen concentrators & oxygen cylinders market, 2019 & 2026 (Units)

24,510 Units Incremental Opportunity

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
7.6.5 SAUDI ARABIA

Saudi Arabia medical oxygen concentrators & oxygen cylinders market is expected to grow at a CAGR of 4.3% over the forecast period. Major factors driving market growth include improved healthcare expenditure in the country, which provides better market opportunities to manufacturers.

Moreover, the number of patients suffering from acute and chronic respiratory diseases in Saudi Arabia is expected to increase over the forecast period. According to the Ministry of Health in 2014, respiratory diseases were the fifth leading cause of death in Saudi Arabia. Approximately, 3,388 people died due to respiratory diseases in 2014, which was a rise of 79.07% as compared to the number in 2010. The prevalence of COPD in the country varies between 2.4% and 4.2% and is expected to increase, owing to a large number of smokers in the country, which is further expected to drive market growth.

The prioritization of healthcare by the Saudi Arabian government is expected to drive market growth over the forecast period. For instance, to achieve Saudi Vision 2030, the government allocated USD 39.2 billion for healthcare and social development sector in 2018. The government is also planning to construct 36 new hospitals and two medical cities to improve the quality of care for patients. This is likely to create an increased demand for oxygen cylinders and concentrators over the forecast period.

As of 15 April 2020, there were 5,369 total number of confirmed cases of COVID-19 in Saudi Arabia. Moreover, the country has registered a total of 79 deaths due to coronavirus as of 15 April 2020. According to our research, we can deduce that the incidence rate of COVID-19 is gradually increasing and is expected to witness a slight decrease in the daily new cases in the latter half of the second quarter of the year 2020.

7.6.5.1 SAUDI ARABIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (USD MILLION)

![Graph showing incremental opportunity](image-url)

Source: WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
### 7.6.5.2 SAUDI ARABIA MEDICAL OXYGEN CONCENTRATORS & OXYGEN CYLINDERS MARKET, 2019 & 2026 (UNITS)

![Graph showing the Saudi Arabia Medical Oxygen Concentrators & Oxygen Cylinders market, 2019 & 2026 (Units)](image)

**Source:** WHO, U.S. CDC, FDA, NIH Journals, Investor Presentations, Primary Interviews, Grand View Research Analysis
CHAPTER 08 Competitive Landscape

8.1 Company Profiles

8.1.1 INVACARE CORPORATION

8.1.1.1 COMPANY OVERVIEW

Invacare Corporation is a medical devices company involved in manufacturing, designing, & distribution of home care and long-term care medical devices, powered wheelchairs, scooters, walkers, pressure care, & other respiratory products. The company’s total product portfolio is about 25,000 medical devices that are distributed to 80 countries globally. It has medical devices that cater to various respiratory conditions, such as Chronic Obstructive Pulmonary Disease (COPD), brain injuries, pressure ulcers, and spinal cord injuries.

8.1.1.2 FINANCIAL PERFORMANCE

<table>
<thead>
<tr>
<th>Financials (Invacare Corporation)</th>
<th>2017 (USD Million)</th>
<th>2018 (USD Million)</th>
<th>2019 (USD Million)</th>
<th>Key Contributing Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>966.5</td>
<td>972.3</td>
<td>928.0</td>
<td>The company's net sales in 2019 decreased by 4.6% as compared to that in 2018. This was owing to the decrease in foreign currency translation and a steep decline in the sale of respiratory products. Moreover, the company’s sale in North America and Europe region also decreased, which further impacted the company’s overall sales.</td>
</tr>
<tr>
<td>Net Loss</td>
<td>(76.5)</td>
<td>(43.9)</td>
<td>(53.3)</td>
<td></td>
</tr>
<tr>
<td>Operating Income</td>
<td>(40.2)</td>
<td>(18.3)</td>
<td>(10.4)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Investor Presentation, Annual Reports 2016, 2017 and 2018
### Product Benchmarking

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stationary Oxygen Concentrator</strong></td>
<td></td>
</tr>
<tr>
<td>Invacare Platinum 10 Oxygen Concentrator</td>
<td>The device weighs around 53 lbs. and it provides flow rate of oxygen around 2-10 LPM (liters per minute)</td>
</tr>
<tr>
<td>Invacare Perfecto2 V Oxygen Concentrator</td>
<td>The device weighs around 40 lbs. and is equipped with innovative features, such as low noise, pressure relief valve, &amp; power-loss alarm and is easy to carry</td>
</tr>
<tr>
<td>Invacare 5 Oxygen Concentrator</td>
<td>Invacare 5 is an oxygen concentrator that has low maintenance costs, is easy to service, and has alarm system.</td>
</tr>
<tr>
<td><strong>Portable Oxygen Concentrator</strong></td>
<td></td>
</tr>
<tr>
<td>Invacare Platinum Mobile Oxygen Concentrator With Extra Battery</td>
<td>The device is intended for daily use and weighs around 5.98 lbs. It comes with a High Efficiency Particulate Air (HEPA) filter.</td>
</tr>
<tr>
<td>Invacare Platinum Mobile Oxygen Concentrator With Single Battery</td>
<td>The device is intended for daily use and weighs around 4.98 lbs. It also comes with a HEPA filter.</td>
</tr>
<tr>
<td>Invacare XPO2 Portable Oxygen Concentrator</td>
<td>It is a lightweight concentrator that lasts for about 3 hours 40 minutes. The device is lightweight, versatile, and reliable and has 5 pulse settings to match users’ requirements. It is FAA approved, which makes it suitable for air travels.</td>
</tr>
<tr>
<td><strong>Oxygen Systems</strong></td>
<td></td>
</tr>
<tr>
<td>Invacare HomeFill Oxygen System</td>
<td>It is an oxygen system that provides unlimited, refillable ambulatory oxygen supply for patients, to provide greater mobility and increase independence when compared to traditional oxygen modalities.</td>
</tr>
<tr>
<td>Invacare HomeFill System Kit, ML6 Conserver Cylinder</td>
<td>The kit consists of a HomeFill Compressor, Ready-Rack, two ML6 cylinders, and convenient shoulder bag. Oxygen flows for 6.3 hours.</td>
</tr>
<tr>
<td>Invacare HomeFill System Kit, M2 Conserver Cylinder</td>
<td>The system kit consists of a HomeFill compressor, Ready-Rack, two M2 cylinders, and convenient shoulder bag. Oxygen flows for 2.2 hours.</td>
</tr>
<tr>
<td>Invacare HomeFill System Kit, ML4 Conserver Cylinder</td>
<td>The kit consists of a HomeFill Compressor, Ready-Rack, two ML4 cylinders, and convenient shoulder bag. Oxygen flows for a duration of 4.3 hours.</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Invacare HomeFill System Kit, ML9 Conserver Cylinder</td>
<td>The system kit consists of a HomeFill Compressor, Ready-Rack, two M9 cylinders, and convenient shoulder bag.</td>
</tr>
</tbody>
</table>

### Oxygen Cylinders

- Invacare HomeFill ML6 Post Valve Cylinder
- Invacare HomeFill ML9 Post Valve Cylinder
- Invacare HomeFill D Post Valve Cylinder
- Invacare HomeFill Integrated Conserver ML6 Cylinder
- Invacare HomeFill Integrated Conserver M9 Cylinder
- Invacare HomeFill Integrated Conserver ML4 Cylinder
- Invacare HomeFill Patient Convenience Pack, M9 Cylinder and Bag
- Invacare HomeFill Patient Convenience Pack, M2 Cylinder and Bag
- Invacare HomeFill Patient Convenience Pack, ML6 Cylinder and Bag
- Invacare HomeFill Continuous Flow D Cylinder
- Post Valve Cylinder for HomeFill (ML6)
- Patient Convenience Pack – Cylinder: HomeFill Patient Convenience Pack Cylinder - ML4 size

The company also provides various accessories for oxygen concentrators and cylinders.
8.1.1.4 STRATEGIC INITIATIVES

- In March 2020, Invacare Corporation announced that it will provide oxygen concentrators for respiratory care, which is a critical part of COVID-19 therapy. This will help millions of patients affected by COVID-19 pandemic, which is expected to strengthen company's revenue.

- In September 2018, Invacare Corporation launched an advertising campaign to build awareness about its Platinum Mobile Oxygen Concentrator. After the launch, the company even started selling the device to consumers through a new website. The main aim behind this strategy was to create awareness about the product, through social media, radio, and TV and drive traffic to the new website.

- In October 2017, the company launched enhanced Invacare Platinum Mobile Oxygen Concentrator with Connectivity (an upgraded form of its existing oxygen concentrator). The product uses healthcare informatics platform on oxygen concentrators via a mobile app that allows a user to view the battery life remaining on their device and obtain information & support through their mobile devices. It also allows them to have access to device performance. It is an emerging platform that is likely to attract more consumers keen on using innovative products.
8.1.2 KONINKLIJKE PHILIPS N.V. (PHILIPS RESPIRONICS)

8.1.2.1 COMPANY OVERVIEW

Koninklijke Philips N.V. is a technology company that operates through three verticals—healthcare, consumer lifestyle, and lighting. The company’s subsidiary—Philips Respironics—is currently offering products related to respiratory disorders and sleep apnea. The company has a large portfolio of solutions catering to Continuous Positive Airway Pressure (CPAP), sleep therapy, durable medical equipment, sleep apnea, respiratory care, COPD, portable oxygen, and home health. Its healthcare business is divided into four segments — clinical informatics & home healthcare solutions, imaging systems, customer services, and patient care. For COPD patients, the company provides stationary and portable oxygen therapy solutions, such as home oxygen systems, portable oxygen concentrators, and stationary oxygen concentrators.

8.1.2.2 FINANCIAL PERFORMANCE

<table>
<thead>
<tr>
<th>Financials (Koninklijke Philips N.V.)</th>
<th>2017 (USD Million)</th>
<th>2018 (USD Million)</th>
<th>2019 (USD Million)</th>
<th>Key Contributing Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>19,286.5</td>
<td>19,656.4</td>
<td>21,132.7</td>
<td>The company’s sales increased by 8.0% in 2019, as compared to its sales in 2018. A significant rise of 10% in the ‘Diagnosis &amp; Treatment’ businesses, 8% growth in ‘Connected Care’ businesses, and 6% growth in the ‘Personal Health’ Businesses contributed towards this sales growth. The net income increased by 6.9% as compared to that in 2018, owing to the improvements in operational performance, lower net financial expenses, and lower charges related to company’s discontinued operations.</td>
</tr>
<tr>
<td>Net income</td>
<td>2,028.5</td>
<td>1,190.0</td>
<td>1,272.4</td>
<td></td>
</tr>
<tr>
<td>Operating Income</td>
<td>1,650.0</td>
<td>1,780.0</td>
<td>1,790.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Investor Presentation, Annual Reports 2016, 2017 and 2018
### 8.1.2.3 PRODUCT BENCHMARKING

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portable Oxygen Concentrators</strong></td>
<td></td>
</tr>
<tr>
<td>SimplyGo</td>
<td>The device delivers continuous, pulse-dose oxygen to the user. It weighs around 4.5 kg.</td>
</tr>
<tr>
<td>SimplyGo Mini</td>
<td>It is the smallest and lightest portable oxygen concentrator that weighs around 2.25 kg. It comes with additional features, such as easily removable battery and comfortable case for device</td>
</tr>
<tr>
<td><strong>Stationary Oxygen Concentrators</strong></td>
<td></td>
</tr>
<tr>
<td>SimplyFlo</td>
<td>This device is preferred for patient’s requiring nocturnal oxygen supply. This device weighs around 14 kg</td>
</tr>
<tr>
<td><strong>Home Oxygen System</strong></td>
<td></td>
</tr>
<tr>
<td>UltraFill</td>
<td>It is an advanced home oxygen system with a stationary oxygen concentrator, filling station, and high-capacity 3,000 PSI cylinders for mainstream and high-usage oxygen patients.</td>
</tr>
<tr>
<td>EverFlo</td>
<td>It is a type of stationary concentrator that weighs around 31 kg and provides around 0.5 to 5 liters of oxygen per minute.</td>
</tr>
</tbody>
</table>

### 8.1.2.4 STRATEGIC INITIATIVES

- In July 2016, Philips Respironics announced that SimplyGo Mini—a type of portable oxygen concentrator—fulfills Federal Aviation Administration (FAA) requirements for POC carriage and, hence, can be used in flights. This initiative has helped the company increase sales of SimplyGo Mini, as active people suffering from respiratory problems can use it during air travel.
8.1.3 DRIVE DEVILBISS HEALTHCARE INC.

8.1.3.1 COMPANY OVERVIEW

Drive DeVilbiss Healthcare, Inc. designs, manufactures, and markets respiratory products used in oxygen therapy, aerosols, suction, and sleep therapy. The company’s products cater to various respiratory diseases, such as COPD, asthma, cystic fibrosis, and obstructive sleep apnea. The company has presence across 80 countries, through its distribution centers in North America, Europe, Central America, Asia, South America, and Middle East.

8.1.3.2 PRODUCT BENCHMARKING

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portable Oxygen Concentrator</td>
<td></td>
</tr>
<tr>
<td>iGo Portable Oxygen Concentrator</td>
<td>This device is expected to provide higher advantage for patient with active lifestyle. It has options for continuous flow and pulse dose delivery and can be operated on AC or DC power or through rechargeable batteries.</td>
</tr>
<tr>
<td>iFill Personal Oxygen Station</td>
<td>This device comes with improved reliability and durability as compared to other devices.</td>
</tr>
<tr>
<td>Stationary Oxygen Concentrator</td>
<td></td>
</tr>
<tr>
<td>5 Liter oxygen concentrator</td>
<td>This device is equipped with DeVilbiss Turn-Down technology, which is expected to improve life of concentrators. Its simplified two-piece cabinet device allows 15% sound reduction.</td>
</tr>
</tbody>
</table>
8.1.3.3 STRATEGIC INITIATIVES

- In November 2019, DeVilbiss Healthcare launched a new iGo2 Portable Oxygen Concentrator (POC) in the market. This device uses its patented SmartDose Technology that can automatically regulate the dosage of oxygen in accordance with the patient's breathing rate. This device also provides PulseDose delivery mode combined with SmartDose. This new product launch is expected to help the company strengthen its position in portable concentrators.

- In October 2017, DeVilbiss Healthcare introduced its 10-L oxygen concentrator in the market. The company claimed that the product was the smallest and the lightest 10-L concentrator available in the market. This new product launch would help the company strengthen its position in terms of stationary concentrators.

- In July 2015, Drive Medical completed the acquisition of DeVilbiss Healthcare. This acquisition helped Drive Medical acquire the expertise of DeVilbiss Healthcare in manufacturing respiratory and sleep products and increase its presence in the European region. As per the agreement, both the companies would operate as Drive DeVilbiss Healthcare, Inc. in the Americas and as separate entities in rest of the countries.

- In May 2015, DeVilbiss launched its technologically advanced DeVilbiss iFill Personal Oxygen Station. Launch of this new product is expected to enhance the company’s foothold in portable medical oxygen concentrators market.
### 8.1.4 CAIRE INC.
#### 8.1.4.1 COMPANY OVERVIEW

Caire Inc. is a manufacturer of oxygen delivery solutions. The company’s products are sold under the brand names AirSep, SeQual CAIRE, and HELiOS, which include portable & stationary oxygen therapy devices. These products support long-term home care services, hospice, hospitals, and other key commercial applications. The company was acquired by NGK SPARK PLUG in 2018. It was earlier a part of Chart Industries, Inc.

#### 8.1.4.2 PRODUCT BENCHMARKING

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portable Oxygen Concentrator</strong></td>
<td></td>
</tr>
<tr>
<td>FreeStyle Comfort</td>
<td>It is a type of portable oxygen concentrator that delivers oxygen in 5 pulse settings. It is based on the UltraSense technology that offers sensitive breath detection to ensure proper delivery of oxygen.</td>
</tr>
<tr>
<td>Eclipse 5</td>
<td>It is a type of portable oxygen concentrator that can provide continuous flow of oxygen from 0.5 to 3 LPM and pulse doses up to a setting of 9. The product is FAA approved for use in commercial airline.</td>
</tr>
<tr>
<td><strong>Stationary Oxygen Concentrator</strong></td>
<td></td>
</tr>
<tr>
<td>AirSep VisionAire 5</td>
<td>It is quiet and power-efficient, stationary oxygen concentrator that weighs around 30 lbs., providing long-term oxygen therapy specially designed for home care settings</td>
</tr>
<tr>
<td>AirSep NewLife Elite</td>
<td>The concentrator delivers oxygen up to 5 liters per minute (LPM) and is the preferred choice for hospitals and clinics. It can be equipped with a pediatric flowmeter for use with infants and other patients who have been prescribed low liter flow (0.125–2 LPM). The product weighs around 54 lb.</td>
</tr>
<tr>
<td>CAIRE Companion 5</td>
<td>It is a type of oxygen concentrator that is mainly designed for home use. It weighs around 36 lbs.</td>
</tr>
<tr>
<td>AirSep NewLife Intensity</td>
<td>It is a type of continuous flow stationary oxygen concentrator that operates at a flow rate of 2.0 to 10.0 LPM. It weighs around 58 lbs.</td>
</tr>
</tbody>
</table>

**Key Statistics**

- Establishment year: 1992
- Headquarters: Georgia, U.S.
- Market relevance: High
8.1.4.3 STRATEGIC INITIATIVES

- In March 2020, CAIRE, Inc. announced that the company increased the production of its oxygen therapy solutions to meet the growing demand for oxygen concentrators to fight coronavirus (COVID-19). The company added extended work hours, production shifts, and is expanding its production lines to address this increased demand for oxygen equipment in its manufacturing facilities in Buffalo, New York; Ball Ground, Georgia; and Chengdu, China. It is expected to increase the company's sales and supply its products to millions of patients affected by COVID-19 pandemic.

- In January 2019, CAIRE, Inc. was acquired by NGK SPARK PLUG—a Japanese ceramics processing manufacturer. Earlier the company was a part of Chart Industries. The main aim of the acquisition of NGK SPARK PLUG was to enter the healthcare space and use its expertise pertaining to sensor technologies in the medical field. This acquisition is likely to help CAIRE, Inc. in increasing its global distribution chain and product sales.

- In September 2018, CAIRE, Inc. introduced Freestyle Comfort portable oxygen concentrators in the market. The device is a type of wearable oxygen concentrator that works on wireless network, allowing easy sharing of device data between patients and providers. This innovative product is likely to strengthen the company’s foothold in the global market and increase the number of consumers.
8.1.5 INOGEN INC.

8.1.5.1 COMPANY OVERVIEW

Inogen, Inc. is a medical technology company involved in manufacturing, designing, and selling of oxygen concentrators that are used to deliver long-term oxygen therapy for patients with chronic respiratory conditions. The company has a wide portfolio of portable devices, such as Inogen One G2, G3, and G4. These devices are equipped with intelligent delivery technology that gives them an upper edge over other devices available in the market. The company’s home stationary concentrator caters to patients from nonambulatory settings. It sells products in about 45 countries outside the U.S. through its distributors—Independent Living Specialists (ILS) and Air Liquide Healthcare in Australia & New Zealand, respectively; E-xclusif Medical in Singapore; Protecvision in Mexico; Bayan Al Dheera in Kuwait; and many others.

8.1.5.2 FINANCIAL PERFORMANCE

<table>
<thead>
<tr>
<th>Financial (Inogen, Inc.)</th>
<th>2015(USD Million)</th>
<th>2016(USD Million)</th>
<th>2017(USD Million)</th>
<th>Key contributing factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>113.6</td>
<td>168.2</td>
<td>225.5</td>
<td>The company’s sales increased by 34.07% in 2017, as compared to its sales in 2016, owing to a significant increase in the number of oxygen systems sold. There was a total increase of 39.1% in the number of units sold. An increase in global business-to-business sale and growth in direct-to-consumer sales in the U.S. are the leading factors that contributed towards this rise in number of units sold.</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>76.3</td>
<td>97.3</td>
<td>121.237</td>
<td></td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>61.2</td>
<td>74.4</td>
<td>93.6</td>
<td></td>
</tr>
<tr>
<td>Net Income</td>
<td>11.6</td>
<td>20.519</td>
<td>21.002</td>
<td></td>
</tr>
</tbody>
</table>

Source: Investor Presentation, Annual Reports 2016, 2017 and 2018
### 8.1.5.3 PRODUCT BENCHMARKING

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portable Oxygen Concentrators</strong></td>
<td></td>
</tr>
<tr>
<td>Inogen One G4 System</td>
<td>It is a single-solution device that is lightweight, energy efficient, quiet,</td>
</tr>
<tr>
<td></td>
<td>and has varying applications in home care settings and while traveling.</td>
</tr>
<tr>
<td>Inogen One G3 System</td>
<td>This is the lightest portable oxygen concentrator manufactured by the</td>
</tr>
<tr>
<td></td>
<td>company. It can operate on single battery as well as on double battery.</td>
</tr>
<tr>
<td>Inogen One G5</td>
<td>The device weighs around 4.7 lbs. and works on a single battery. It can</td>
</tr>
<tr>
<td></td>
<td>be used 24×7.</td>
</tr>
<tr>
<td><strong>Home Oxygen Concentrator</strong></td>
<td></td>
</tr>
<tr>
<td>Inogen at Home</td>
<td>The device weighs around 8.2 kg. It has an advantage over other devices due to</td>
</tr>
<tr>
<td></td>
<td>its smaller size.</td>
</tr>
</tbody>
</table>

### 8.1.5.4 STRATEGIC INITIATIVES

- In April 2019, Inogen, Inc. released its new range of Inogen One G5 portable oxygen concentrators in the market. The concentrator weighs around 4.7 pounds and has total 6 flow settings. The devices can be used at home, outside, or during travel. The product has been initially released for sale thru the company’s domestic direct-to-consumer sales channel and was soon be made available through other channels. The product is very innovative and one of the smallest concentrators available in the market. Its release is likely to strengthen the company’s position in portable travel-friendly oxygen concentrator market.

- In December 2018, the company launched Inogen Connect—a wireless technology platform—for Inogen One G4. Inogen connectivity platform mainly consists of a mobile app and database portal in the back end, which can be used by those on oxygen therapy. The company believes that the platform would help in improving operational efficiency of oxygen concentrators and, in the meantime, would help store patient data.

- In May 2016, the company announced release of Inogen One G4 portable oxygen concentrator in the market. The device is ultraportable, and release of this product represents the company’s step forward in the oxygen therapy market.
8.1.6 RESMED
8.1.6.1 COMPANY OVERVIEW

ResMed is a healthcare company that develops, manufactures, and distributes medical devices and cloud-based software for diagnosis and treatment of sleep & respiratory disorders such as Sleep Disordered Breathing (SDB), neuromuscular diseases, and Chronic Obstructive Pulmonary Disease (COPD). The products manufactured by the company for SDB market include devices used for various therapeutic, diagnostic, and management purposes, which help in treating obstructive sleep and respiratory disorders. As of October 2019, the company’s products are sold in nearly 70 countries through distributors and direct sales.

8.1.6.2 FINANCIAL PERFORMANCE

<table>
<thead>
<tr>
<th>Financials (ResMed)</th>
<th>2016 (USD Million)</th>
<th>2017 (USD Million)</th>
<th>2018 (USD Million)</th>
<th>2019 (USD Million)</th>
<th>Key Contributing Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>1,800</td>
<td>2,100</td>
<td>2,300</td>
<td>2,610</td>
<td>The company witnessed 11% growth in its sales revenue in the year 2019 as compared revenue in 2018. The key factors attributing towards this growth are release of new products such as AirFit F30 - a facial mask, and AirFit N30i and P30i - nasal &amp; pillow masks and the rise in sales revenue (13%) from the U.S, Canada and the Latin America region.</td>
</tr>
<tr>
<td>Gross profit</td>
<td>1,100</td>
<td>1,200</td>
<td>1,400</td>
<td>1,530</td>
<td></td>
</tr>
<tr>
<td>Net income</td>
<td>400</td>
<td>340</td>
<td>320</td>
<td>400</td>
<td></td>
</tr>
</tbody>
</table>


Key Statistics

Establishment year: 1989
Headquarters: California, U.S.
Market relevance: High
### 8.1.6.3 PRODUCT BENCHMARKING

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>LifeChoice Activox 4L</td>
<td>It is a type of portable oxygen concentrator that weighs around 4.8 pounds/2.2 kg. The device works on pulse-wave technology to efficiently deliver the right dosage of oxygen, as required and is mostly suitable for people with active lifestyle.</td>
</tr>
<tr>
<td>ResMed Mobi</td>
<td>It is a portable travel-friendly oxygen concentrator that works on the pulse-wave technology.</td>
</tr>
</tbody>
</table>

The company is also involved in the sale of various accessories related to oxygen concentrators.

### 8.1.6.4 STRATEGIC INITIATIVES

- In March 2019, ResMed completed the acquisition of HB Healthcare (HBH), a South Korea-based home medical equipment provider. This acquisition is likely to help the company in easy distribution of its sleep and respiratory care devices in South Korea as well as supply its products to millions of patients in the country.

- In December 2018, the company announced the acquisition of Propeller Health, a digital therapeutics company that delivers connected health solutions to people living with asthma and COPD. This acquisition would help ResMed strengthen its market presence.

- In January 2018, ResMed introduced its first portable oxygen concentrator—Mobi—in the U.S. market. In the meantime, the company was also seeking approval for sale of this product outside the U.S. The company has been providing various solutions to people suffering from various respiratory disorders, and the launch of this product is likely to further strengthen its portfolio for COPD management.
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Registered Office Address
Grand View Research, Inc.
201 Spear Street 1100, Suite 3036
San Francisco, CA 94105
United States
Phone: 1-415-349-0058
Email: sales@grandviewresearch.com