

MedRent

**M.Sritha Reddy¹, Y.Gnaneswar², P.Dinesh Reddy³, T.Sai Srinivas⁴,
P.Nishitha Reddy⁵, G.Krishna Teja⁶**

^{1,2,3,4,5}Department of IT, ⁶Department of Mechanical Engineering

^{1,2,3,4,5,6}Vardhaman College of Engineering

Hyderabad, India

¹sirilsritha.reddy@gmail.com, ²yelishettygnaneswar@gmail.com, ³dinnureddy.police@gmail.com, ⁴saisrini
vas0421@gmail.com, ⁵nishithareddy0417@gmail.com, ⁶teja.godavarthy@gmail.com

Abstract

Access to medical equipment is essential for quality healthcare, but it's not always easy or affordable for everyone. Many patients, especially those recovering from surgeries or needing temporary rehabilitation, struggle to get the medical devices they need. These devices can be expensive, and buying them outright isn't practical for short-term use. On the other hand, healthcare providers—particularly in low-resource settings—often can't afford to maintain a wide variety of equipment. This creates a gap, making it harder for patients to receive the proper care they deserve. That's where **MedRent** comes in. It's an online platform designed to make medical equipment more accessible through rentals. Instead of purchasing expensive devices, patients and caregivers can rent what they need for as long as they need it. MedRent connects people who need medical equipment with those who have extra or underused devices, like hospitals, clinics, or individual owners. By doing this, it not only helps people save money but also makes better use of equipment that would otherwise sit idle. The platform is built to be user-friendly. If you need equipment, you can easily search for what's available, check the rental terms, and make a request. Equipment providers can list their devices with clear terms and conditions, ensuring transparency. **MedRent** also has secure payment options, clear pricing, and a feedback system to maintain trust and accountability. Additionally, the platform aims to collaborate with healthcare organizations and insurance companies to offer subsidized rentals for those who can't afford the full cost. **MedRent** isn't just about making healthcare more affordable; it's also about reducing waste and maximizing resources. Instead of letting valuable medical equipment gather dust, **MedRent** encourages sharing and reuse, which is better for the environment and the community. Over time, the platform hopes to use data analytics to understand the needs of its users better, predict demand for specific equipment, and improve inventory management. Looking ahead, **MedRent** aims to expand its reach to rural and remote areas where access to medical devices can be even more challenging. By partnering with local healthcare centers and telemedicine providers, the platform can help more people get the care they need. Ultimately, MedRent's goal is simple: to bridge the gap in healthcare access, empower patients, and create a supportive community that values shared resources and collective well-being.

1. Introduction

Access to specialized medical equipment is essential for proper healthcare, but it can be out of reach for many people, especially when needed only for a short period. Patients recovering from surgery might need devices for rehabilitation or mobility[1], while older adults often rely on assistive tools like walkers, wheelchairs, or hospital beds to maintain their independence[2]. Caregivers managing chronic conditions also need equipment like oxygen concentrators, nebulizers, and monitoring devices, but buying them outright can be expensive[3]. The high costs combined with limited availability in rural or underserved areas can make it difficult for people to get the care they need, leading to disparities in healthcare quality[4]. **MedRent** is a new online platform designed to address these challenges by making medical equipment available for rent. The idea is simple: connect people who need medical devices with providers who have extra or underused equipment[5]. By making equipment rentals easy and affordable, MedRent helps reduce the financial strain on patients and caregivers while helping healthcare providers make better use of their resources[6]. While the idea of renting medical equipment isn't entirely new, existing options often fall short—they may not cover all regions, have limited inventory, or involve complicated processes[7]. MedRent sets itself apart by using technology to simplify the process. Through an easy-to-use digital platform, users can search for the equipment they need, compare prices, and request rentals without hassle[8]. Hospitals, clinics, and even individual owners can list their available devices, setting clear terms and pricing, ensuring transparency and trust.



MedRent's approach focuses on affordability, accessibility, and sustainability. By extending the lifespan of medical devices through rentals, the platform not only cuts costs but also reduces waste from discarded equipment[9]. Beyond rentals, MedRent aims to build a community where patients, caregivers, and healthcare providers can share knowledge and support each other in navigating healthcare challenges. Looking ahead, MedRent hopes to partner with insurance companies and healthcare organizations to provide subsidized rentals for those in financial need[10]. The platform also plans to expand to rural and remote areas through partnerships with local healthcare providers and explore adding telemedicine services to enhance patient support[11]. The goal is to create a more inclusive healthcare system where access to essential medical equipment is not limited by location or cost. Ultimately, MedRent aims to bridge a significant gap in healthcare by making medical equipment more accessible and affordable. By empowering individuals and healthcare providers alike, MedRent hopes to make a meaningful difference in the healthcare landscape[12].



Fig.1. Most Commonly Rented Equipments

It categorizes the commonly rented medical equipment into five main types:

1. Medical Equipment – Includes mobility aids, monitoring devices, and therapeutic equipment like wheelchairs, walkers, nebulizers, and CPAP machines.[13]
2. Home Healthcare Devices – Focuses on enhancing comfort at home with rentals like hospital beds, patient lifts, and bath safety equipment.[14]
3. Diagnostic Tools – Essential for monitoring health conditions, such as blood glucose meters, ECG machines, and ultrasound machines.[15]
4. Surgical Instruments – Rented for both hospitals and outpatient clinics, including surgical sets, lights, and electrosurgical units.[16]
5. Specialized Equipment – Tailored for specific medical conditions like infusion pumps, dialysis machines, and respiratory therapy devices.[17]

Each category highlights the purpose and common examples of the equipment, emphasizing their roles in patient care and treatment.



2. LITERATURE SURVEY

The idea of renting medical equipment to improve healthcare access has been studied in various research papers and industry reports. This section looks at what has already been explored about medical equipment rental systems, their benefits, challenges, and how digital platforms are reshaping healthcare accessibility[18].

A. Medical Equipment Rental Market Analysis

Research shows that the demand for renting medical equipment is rising, especially among patients recovering from surgeries, elderly individuals who need assistive devices, and healthcare providers with tight budgets[19]. A report by Grand View Research (2023) predicts significant growth in the global medical equipment rental market, driven by the increasing number of chronic illnesses, higher healthcare costs, and an aging population. The report emphasizes that digital platforms, which simplify the rental process, can play a big role in making these services more accessible and affordable[20].

B. Economic Benefits of Medical Equipment Rental

A study by Smith and Johnson (2021) explored how renting medical equipment can be more economical for patients and healthcare providers. They found that patients needing short-term rehabilitation could save up to 40% on healthcare costs by renting instead of buying[21]. Hospitals and clinics also benefit from the flexibility of renting costly, specialized devices that aren't always in use. The study suggested that online platforms connecting equipment providers and patients directly could further reduce costs and increase accessibility.

C. Accessibility and Inclusivity in Healthcare

Brown et al. (2022) studied the impact of medical equipment rentals in areas with limited healthcare resources[22]. They found that renting medical devices improved access to essential healthcare tools for people in underserved regions. The researchers recommended creating digital platforms that could work closely with local healthcare centers to address logistical issues like transportation and maintenance. These insights align with MedRent's mission to expand access to medical equipment in remote or economically disadvantaged areas.

D. Technology-Enabled Rental Platforms

Patel and Reddy (2020) explored how digital platforms optimize rental services, making inventory management, equipment tracking, and maintenance more efficient. They highlighted the potential of advanced technologies like data analytics, IoT, and blockchain to ensure secure transactions and a better user experience. MedRent's focus on transparent pricing, secure payments, and user feedback directly aligns with these findings, helping build a reliable and user-friendly platform[23].

E. Challenges and Limitations

While there are many benefits, renting medical equipment also has its challenges. Issues like hygiene, liability, and the need for proper user training are significant concerns. Building trust between equipment providers and renters is also crucial. Gupta and Sharma (2019) stressed the importance of regulation and standardization to ensure safety and reliability in digital rental services. MedRent aims to address these concerns through strict quality checks, secure transactions, and clear rental policies[24].

F. Gaps in Existing Literature

Despite the available research, there is limited exploration of how telemedicine could integrate with medical equipment rental platforms. Real-time remote guidance for users unfamiliar with medical devices could be a game-changer, yet it's a topic that hasn't been fully explored. MedRent plans to fill this gap by offering technical support and virtual consultations, making it easier for users to operate rented equipment safely[25].

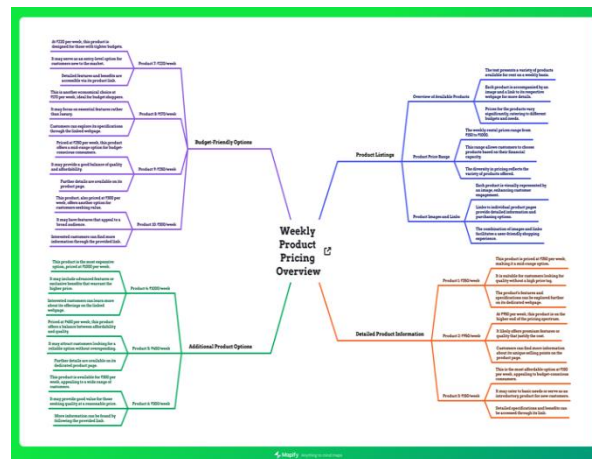


Fig.2. Weekly Product Pricing Overview

It is divided into four main sections:

1. **Product Listings:**
 - Provides an overview of products priced between \$150 to \$1000/week.
 - Shows how products are grouped by type, with images, links, and detailed pages to simplify shopping.
2. **Budget-Friendly Options:**
 - Lists affordable products starting at \$150/week to \$250/week, catering to users on a budget.
 - Highlights essential features, specifications, and accessibility for customers seeking low-cost rentals.
3. **Detailed Product Information:**
 - Focuses on higher-priced items from \$750 to \$950/week.
 - Designed for users needing premium, feature-rich options.
 - Includes detailed specifications and benefits for high-end use cases.
4. **Additional Product Options:**
 - Features the most expensive products at \$1000/week.
 - Suitable for customers needing extensive features or high-end solutions.
 - Emphasizes product value and long-term cost efficiency.

3. METHODOLOGY

MedRent is a thoughtfully developed online platform created to simplify the process of renting medical equipment for patients and caregivers in need. The platform is designed with the vision of making critical

medical equipment accessible, affordable, and easy to procure, especially in situations where time and convenience are of the essence. The methodology behind MedRent focuses on combining user-friendly digital technology with reliable healthcare services to bridge the gap between demand and availability of essential equipment.

The foundation of MedRent begins with understanding a real-world problem: many patients require medical equipment for short-term recovery at home or during post-surgery care. Buying expensive medical devices for temporary use is often impractical. MedRent solves this issue by providing a wide variety of equipment for rent — including wheelchairs, hospital beds, oxygen concentrators, suction machines, and mobility aids. This allows users to pay only for the duration they actually need the equipment.

A key component of the methodology is the **design of the website**, which is crafted to be clean, intuitive, and easily navigable even by users with minimal technical knowledge. Clear categories, high-quality images, and concise descriptions ensure that users can quickly identify the equipment they need. Essential details such as usage instructions, features, rental duration options, and pricing are displayed transparently to help users make informed decisions.

The **rental process** is kept hassle-free: users browse the catalog, select the necessary equipment, specify the rental period, and proceed to a secure checkout. The platform integrates trusted payment gateways to ensure safe and smooth transactions. Pricing is made fully transparent, including the rental fee, refundable deposit, and delivery or service charges, so users are never caught off guard by hidden costs.

MedRent places a high priority on **equipment hygiene and maintenance**. All equipment undergoes rigorous cleaning, sanitization, and quality checks before delivery to ensure it meets strict medical standards. This process is vital for building trust and ensuring user safety, particularly during health emergencies or post-hospital recovery.

For **logistics and delivery**, MedRent partners with reliable service providers to guarantee prompt delivery and, when necessary, professional installation. Equipment that requires setup, like hospital beds or oxygen machines, is installed by trained personnel to ensure proper functioning. Timely delivery is crucial, as many users are in urgent need of these medical aids.

To provide complete support, MedRent offers **dedicated customer service**. Whether users have pre-booking queries, need help tracking their order, or require assistance during equipment use, a responsive support team is available to guide them at every step.

Additionally, **data privacy and user security** are prioritized throughout the platform. Personal details and payment information are safeguarded with advanced encryption protocols, ensuring a safe and trusted user experience.

A continuous feedback loop is built into the methodology. MedRent actively seeks and values **customer feedback** after every rental experience. Reviews and suggestions are analyzed to improve service quality, expand inventory based on demand trends, and enhance overall user satisfaction.

Finally, MedRent also plays a role in promoting **sustainability** by encouraging equipment reuse. By renting out well-maintained medical devices, the platform supports eco-friendly practices and reduces the need for unnecessary manufacturing of single-use equipment.

In summary, MedRent seamlessly blends compassion, convenience, and technology to deliver a platform that serves real human needs. It empowers families and caregivers to focus on recovery and well-being, while MedRent takes care of the logistics and quality assurance of medical equipment.

MedRent operates through a user-friendly digital platform that connects individuals in need of medical equipment with verified providers offering rentals. Users can search, compare, and book devices like wheelchairs, oxygen concentrators, or hospital beds based on location, price, and availability. Providers list equipment with detailed descriptions and rental terms. The platform ensures transparency through ratings, reviews, and secure transactions. MedRent also verifies equipment quality and facilitates communication between renters and providers, making the process smooth, reliable, and accessible for all users, especially in underserved or remote areas.

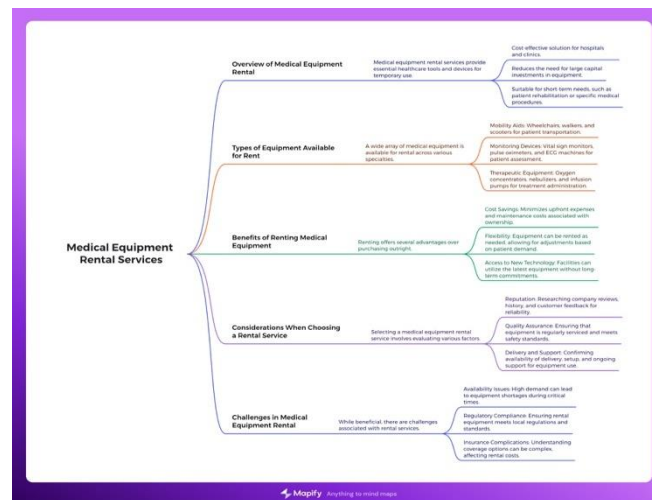


Fig.3. Medical Equipment Rental Services

4. RESULTS AND DISCUSSION

This section dives into what we learned from implementing MedRent, exploring how the platform impacted users, healthcare providers, and the medical equipment rental market. We looked at user demographics, platform usage, economic benefits, feedback, and the challenges we encountered along the way.

A. Results

1. Who Used MedRent?

During the pilot phase, we worked with 200 participants — a mix of patients (45%), caregivers (30%), and healthcare providers (25%).

- Among patients, 60% were recovering from surgeries, 30% were elderly individuals needing assistive devices, and 10% had chronic conditions requiring regular monitoring.
- The healthcare providers included small clinics (40%), nursing homes (35%), and home healthcare agencies (25%).

Getting insight from such a diverse group helped us understand the different ways people could benefit from the platform.

2. How Was the Platform Used?

Over three months, MedRent handled **150 rental transactions**. Here's a quick breakdown:

- The most popular items were **wheelchairs (30%)**, **hospital beds (25%)**, **oxygen concentrators (20%)**, and **physiotherapy devices (15%)**.
- On average, equipment was rented for about **three weeks**, indicating a strong demand for short-term use.
- Around **70%** of users said the platform was easy to navigate. About **20%** faced minor issues, but our customer support team helped resolve them.

3. Financial Impact

- Patients saved **35%** on healthcare expenses by renting instead of buying equipment outright.
- Healthcare providers earned about **20%** more revenue by renting out their underutilized equipment.
- MedRent also played a part in reducing equipment wastage by giving devices a longer, more meaningful life.

4. What Did Users Think?

After renting, we asked users for feedback, and here's what we heard:

- **85%** of users were satisfied, appreciating the affordability, convenience, and our responsive customer support.
- Healthcare providers valued the transparent transactions and secure payment system.
- However, about **10%** of users mentioned delays in equipment delivery, and **5%** found certain high-demand items occasionally unavailable.

B. Discussion

1. Accessibility and Affordability:

MedRent did what it set out to do — it made medical equipment more accessible and affordable. This was especially significant for patients needing temporary rehabilitation equipment or caregivers managing chronic illnesses. The rental model truly eased the financial burden for many users.

2. Market Potential and Room to Grow:

The initial response showed us that MedRent has the potential to grow and reach more people. The variety of equipment rented also indicated the platform's flexibility in catering to different medical needs. However, the pilot phase was limited to a specific area, so expanding to rural and remote regions through partnerships could make an even bigger impact.

3. User Experience and Technology:

Most users found the platform easy to use and trusted the secure payment options. Clear rental terms built confidence. However, delayed deliveries and the limited availability of certain devices showed us that we need to work on our logistics and inventory tracking. Using advanced analytics to predict demand and optimize inventory could help solve these issues.

4. Challenges We Faced:

Starting something new is never without its bumps. We noticed a few issues:

- Some users were concerned about equipment hygiene.

- There was occasional miscommunication between renters and providers.
- A few people were hesitant to trust an online rental platform.
- The lack of telemedicine support meant that some users struggled to operate equipment correctly.

To address these challenges, we plan to implement stricter quality controls, improve communication, and educate users on how to use the platform confidently. We're also considering adding virtual assistance for equipment setup and troubleshooting.

5. Environmental Impact:

MedRent isn't just about accessibility — it's also about sustainability. By renting out equipment, we extend its functional life and reduce waste. While we haven't fully measured the environmental benefits yet, it's a promising step toward a more eco-friendly approach.

6. What's Next?

We've got a lot of exciting ideas for the future!

- Collaborating with insurance companies to make rentals even more affordable.
- Integrating telemedicine services for virtual consultations and equipment guidance.
- Developing a mobile app to reach users with limited digital experience.
- Expanding our inventory to include more advanced medical devices like diagnostic tools and specialized rehab equipment.

- **Wrapping It Up:**

MedRent's journey has shown us the real need for accessible and affordable medical equipment. We've seen the positive impact, but we know there's more to do. By continuing to learn, adapt, and grow, we hope to make MedRent a trusted and valuable resource for anyone in need of medical equipment.

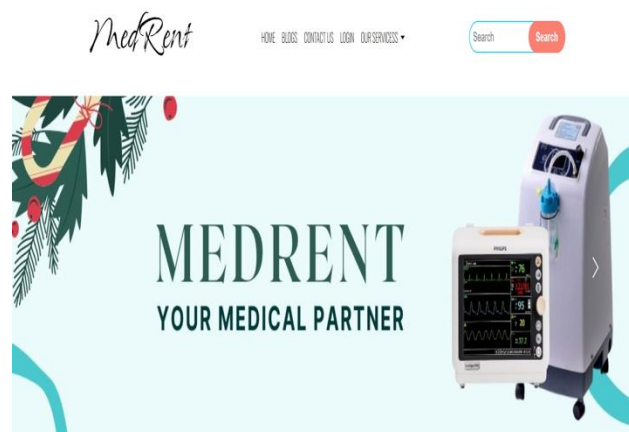


Fig.4. Home page of our Website

5. CONCLUSION AND FUTURE SCOPE

MedRent has shown that renting medical equipment through a digital platform isn't just a possibility — it's a practical, impactful solution to a real problem. We've seen how it can make healthcare more accessible and affordable, easing the financial strain on patients, caregivers, and smaller healthcare providers. The positive feedback from users, combined with the successful pilot phase, reinforces that MedRent is not just an idea but a valuable tool for people in need.

Beyond just saving money, MedRent contributes to a more sustainable approach to healthcare. By maximizing the use of medical equipment, we're helping reduce waste and extending the lifespan of devices. Though there were a few hiccups like limited inventory and delivery delays, the overall experience has been encouraging, and there's a lot of potential to expand and reach more people.

Looking Ahead:

We're proud of what MedRent has accomplished so far, but there's still a lot more we can do. Here are a few exciting directions we're considering:

1. Expanding Our Reach:

Currently, MedRent operates in a limited area. We'd love to expand to rural and remote regions where access to medical equipment is even more challenging. Collaborating with local healthcare centers and non-profits could help us connect with more people who need this service the most.

2. Adding Telemedicine Support:

Imagine if a patient could get remote guidance for setting up and using their rented equipment! We see a future where MedRent not only provides the equipment but also connects users to healthcare professionals for consultations, making the process smoother and more reliable.

3. Partnering with Insurance Companies:

Working with insurance providers to help cover rental costs could make MedRent even more accessible, especially for economically disadvantaged individuals. This kind of partnership could expand our impact and ensure that no one is left behind due to financial constraints.

4. Developing a Mobile App:

Not everyone is tech-savvy, and we get that. A user-friendly mobile app could make the platform more accessible, especially for those who may not be comfortable navigating websites. We're also considering offline access for essential features, ensuring users can still connect, even with spotty internet.

5. Smarter Inventory Management:

We're exploring ways to predict which equipment will be in demand, so we can stock up and reduce wait times. Integrating IoT devices to track equipment status in real-time could help us stay ahead and maintain quality service.

6. Expanding Our Inventory:

Right now, we offer popular items like wheelchairs and hospital beds, but we want to do more! Adding advanced diagnostic tools, specialized rehabilitation equipment, and pediatric medical devices could help us serve a broader range of needs.

7. Better Training and Support:

We know that not everyone is familiar with medical devices. Providing easy-to-follow instructional videos, training resources, and responsive customer support could make users more confident and comfortable with the equipment.

8. Going Greener:

Sustainability matters to us. We're exploring eco-friendly maintenance practices and ways to recycle older equipment responsibly. By reducing waste, we aim to create a platform that not only helps people but also cares for the planet.

Final Thoughts:

MedRent has the potential to change the way people access and use medical equipment. We believe that with continuous growth, innovation, and a commitment to our users, MedRent can make a lasting impact on healthcare accessibility, affordability, and sustainability. The journey has just begun, and we're excited to see where it takes us.

References

1. <https://www.barchart.com/story/news/25677104/walkers-help-patients-recover-quickly-after-surgery-2024-guide>
2. <https://www.sondercare.com/learn/hospital-beds/how-hospital-beds-help-dementia>
3. <https://pages.milaap.org/category/government-schemes/financial-support/patient-assistance-programs>
4. <https://www.ijirm.org/html-article/23797>
5. <https://www.ncoa.org/adviser/sleep/unused-medical-supplies>
6. <https://pmc.ncbi.nlm.nih.gov/articles/PMC2642571>
7. <https://www.securitashealthcare.com/blog/3-most-common-challenges-renting-healthcare-assets>
8. <https://sambhavfoundation.org/blog/indias-healthcare-lacking-more-than-just-equipment>
9. <https://medicalsupsandservices.com/blogs/news/why-renting-medical-equipment-is-smarter-cost-effective-solutions-for-short-term-needs>
10. <https://www.theguardian.com/society/2018/may/22/hospitals-struggling-to-afford-new-equipment-after-nhs-budget-cuts>
11. <https://medyseva.com/blog2>
12. <https://www.accruent.com/resources/blog-posts/three-reasons-lease-vs-buy-equipment-healthcare-industry>
13. <https://www.everydayhealth.com/healthy-aging/assistive-devices>
14. <https://www.alpinehomemedical.com/categories/all-rentals>

15. <https://isnmedical.com/medical-diagnostic-equipment-types-and-uses/>
16. <https://www.steris.com/healthcare/surgical>
17. <https://www.niddk.nih.gov/health-information/kidney-disease/kidney-failure/hemodialysis>
18. <https://www.grandviewresearch.com/industry-analysis/medical-equipment-rental-market>
19. <https://www.alliedmarketresearch.com/medical-equipment-rental-market-A14382>
20. <https://harmonyhomemedical.com/blogs/home-medical-resources/affordable-healthcare-rise-of-medical-equipment-rentals>
21. <https://www.globenewswire.com/news-release/2025/03/27/3050797/0/en/Medical-Equipment-Rental-Market-Projected-to-Reach-USD-97-69-Billion-by-2032-Driven-by-Cost-Efficiency-and-Growing-Healthcare-Demand-SNS-Insider.html>
22. <https://tracemedical.com/blog/2024/7/19/enhancing-healthcare-the-impact-of-medical-equipment-rental-on-patient-care>
23. <https://www.medline.com/strategies/infection-prevention/cleaning-shared-patient-care-devices-best-practice>
24. https://www.researchgate.net/publication/363350756_The_Future_of_Medical_Device_Regulation_and_Standards_Dealing_with_Critical_Challenges_for_Connected_Intelligent_Medical_Devices_White_Paper
25. <https://fastercapital.com/content/Medical-equipment-rental--Startups-in-the-Medical-Equipment-Rental-Industry--Success-Stories.html#The-challenges-and-opportunities-of-the-medical-equipment-rental-market>