Smart Dialysis System
智能透析系统
January 2018
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liberDi – In a Glance

• Develops a portable, automatic dialysis system to significantly improve patient’s QoL and reduce treatment costs

• December 2016 (incubated)

• Multi-billion $ market

• Initial Prototype: FIM H1/18

• Investors:
ESRD Numbers Are Staggering
终末期肾病数量惊人

- 3.2 million ESRD patients
- 6.2% CAGR for ESRD in next 5 years
- $30.9B Medicare spending on ESRD (U.S.)
- 7.1%[1] of Medicare budget for 1% (ESRD) patients of general patient population

And the numbers continue to grow driven by the rise in diabetes, hypertension, and other chronic conditions

这些数据因糖尿病、高血压和其他慢性疾病的增长而持续增长

[1] Source: Referenced study or report.
Current Place of Treatment: Dialysis Centers
当前治疗地点：透析中心

Requires travel to center
3-4 times/week
需要每周3-4次

4 hour sessions
每次4小时

Dietary restrictions
饮食限制

Very expensive:
$88K year/patient;
非常昂贵：8.8万USD/人年

Fatigue, decreased blood pressure,
increased risk of sepsis
乏力，血压降低，感染风险增加
Home-Care Should be the Default
居家治疗应作为首选

- Improved patient QoL and satisfaction  提高患者生活质量
- Reduced complications  减少并发症
- Reduced treatment costs  降低治疗费用

Virtually all patients with ESRD are candidates for Peritoneal Dialysis at home. [11]
所有ESRD患者都合适居家腹膜透析。

"...Patient in your office, they need dialysis; HOME CARE should be the default!“
对所有来就诊的透析患者，都应把居家治疗作为首选

John Moran, MD FRACP FACD
VP for clinical Affairs Home Modalities, DaVita
Yet Only 11% of Patients Receive Dialysis at Home

只有11%的患者居家透析

**Patient**
- Rigorous therapy
  千燥的治疗
- Requires sterile environment
  需要无菌环境

**Physician**
- Reluctant to encourage due to compliance issues
  医生因为复杂的合规问题不愿鼓励居家治疗
- System lacks monitoring
  居家治疗设备缺乏监测

**Infection**
- High risk of peritonitis
  腹膜炎风险高


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The low utilization of Home Dialysis is a lost opportunity to improve patient QoL and decrease healthcare costs.
liberDi’s Smart Peritoneal Dialysis System

• Eliminates need to travel to dialysis centers
  减少患者去透析中心的需求
• Easy-to-operate
  易于操作
• Portable, lightweight
  量轻，可携带
• Reduces infections
  减少感染机会
• Real-time feedback for patient and doctor
  为患者和医生提供实时反馈
• Reduces healthcare costs
  减少医疗成本

liberDi’s solution empowers ESRD patients
liberDi使ESRD患者对生活拥有更佳掌控
liberDi’s Smart PD System

Small and lightweight (270mm x 130mm x 120 - 130mm; ~ 1.9kg)

Disposable pump, disinfection unit
liberDi’s Smart PD System Advantages
产品优势

• Automated, minimum set-up time, easy to operate
  自动化，最少设置时间，易于操作
• Patient monitoring
  对患者的监测
• Active infection control technology
  主动感染控制技术
• Early detection of peritonitis
  早期监测腹膜炎
Everyone Benefits: Patient, Provider, Payer

每个人都获益

• Allows patients to take an active role in treatment 使患者在治疗中发挥主动作用
• Reduces infection risks 降低感染风险
• Improves home dialysis compliance 提高居家透析的依从性
• Real-time physician update 实时通知医生
• Cost saving system 节省成本

“with unique design of this product patients can safely and easily perform PD in their home. In my opinion liberDi’s product is much better than PD systems which are in the market”

Dr. Bao Jinfang, Associate Chief Physician, Nephrology Dept., Shanghai 1st People’s Hospital
liberDi’s Automated Management System

**Patient at Home**

Installation, training, maintenance, delivery, refill, Real-time data updates

Doctor visits, prescriptions & guidance

**Medical Service Provider**

Medical Service Provider

Referrals, reporting, reimbursement

Hospital; insurance company

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liberDi: Cost Saving System

liberDi: 节约成本

Annual cost per patient in the U.S. (2012) 美国每位患者每年治疗费用

• Hemodialysis (血透): $87,500
• Peritoneal dialysis (腹透): $66,750
• liberDi: $54,995

With 414,000 dialysis patients on HD in the U.S., total potential yearly savings with liberDi: $13.5 billion


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Regulatory and Reimbursement
注册与医保

• CE Mark
  – Medical Device class II
  – Safety and usability studies 安全性和实用性研究

• FDA (513g – completed)
  – 510K class II
  – Safety and usability studies 安全性和实用性研究

• Reimbursement established 已有医保编号
  – CPT Codes for procedure and training 已有治疗与培训的医保报销编号
liberDi – Team 核心团队

• **Hezkiah Tsoory, Founder, CEO:** 20+ years’ experience R&D, international business, operations; former executive positions with PV Nanocell, D Medical Industries, MCS, Mentorwave, Power Paper

• **Daniel Kushnir, MD, Medical Advisor:** Head of Dialysis Unit, Carmel Medical Center, Haifa, Israel. 20 years’ experience in nephrology

• **Victor Frajewicki, MD:** Head, Department of Nephrology and Hypertension, Carmel Medical Center. President, Israeli Society of Nephrology and Hypertension. **20+ years’ experience as specialist in nephrology and hypertension**

• **Prof. Avry Chagnac, MD:** Head of the Institute of Nephrology, Rabin Medical Center (Beilinson & Hasharon hospitals), Petah Tikva, Israel; 30 years clinical and research experience in the field of Nephrology in general, and in peritoneal dialysis in particular
# Time Table

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<thead>
<tr>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<tbody>
<tr>
<td>Alpha product</td>
<td>FIM</td>
<td>Beta product</td>
<td>Post marketing study</td>
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<tr>
<td>Pre IDE</td>
<td>Preclinical bench studies</td>
<td>FDA</td>
<td>CE</td>
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Thank You

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References 参考文献

[2] ESRD Patients in 2013, A Global Perspective by Fresenius Medical Care