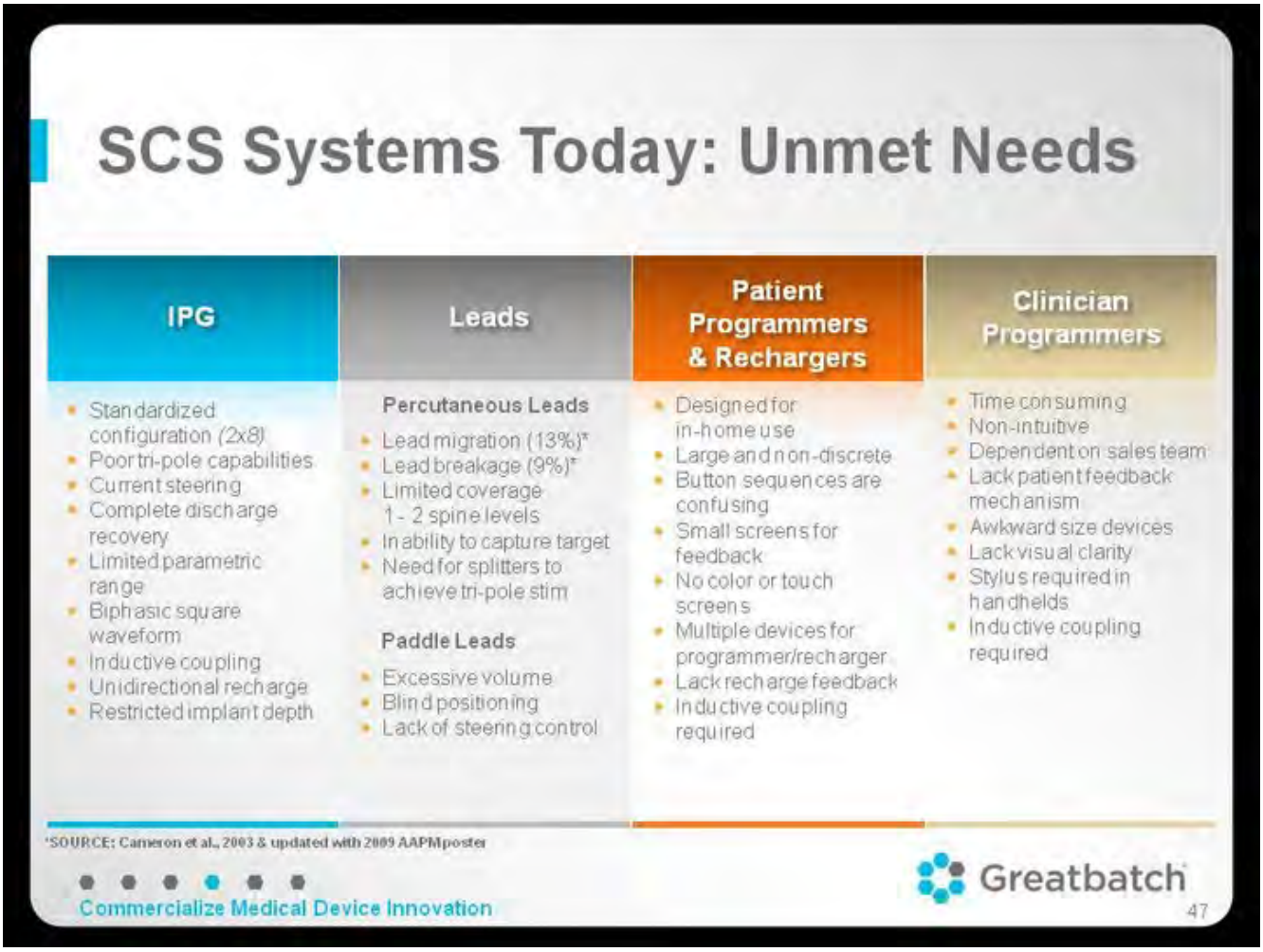
SCS Systems Today: Unmet Needs
IPG
Standardized configuration (2x8)
Poor tri-pole capabilities
Current steering
Complete discharge recovery
Limited parametric range
Biphasic square waveform
Inductive coupling
Unidirectional recharge
Restricted implant depth
Leads
Percutaneous Leads
Lead migration (13%)*
Lead breakage (9%)*
Limited coverage 1 - 2 spine levels
Inability to capture target
Need for splitters to achieve tri-pole stim
Paddle Leads
Excessive volume
Blind positioning
Lack of steering control
Patient Programmers & Rechargers
Designed for in-home use
Large and non-discrete
Button sequences are confusing
Small screens for feedback
No color or touch screens
Multiple devices for programmer/recharger
Lack recharge feedback
Inductive coupling required
Clinician Programmers
Time consuming
Non-intuitive
Dependent on sales team
Lack patient feedback mechanism
Awkward size devices
Lack visual clarity
Stylus required in handhelds
Inductive coupling required
*SOURCE: Cameron et al., 2003 & updated with 2009 AAPM poster
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Product Strategy

- Target unmet clinical needs
- Focus on product differentiation for all user groups
- Procedurally the same - but better
- Legacy free, proprietary system
- Design focused on safety
- Allows efficient regulatory approval
- Gen 1: Technology innovation drives market share
- Gen 2: Breakthrough technology enables market leadership

"A product designed by doctors for doctors"

Richard B. North, MD

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Algostim System
Patient Feedback Tool
PFT
Clinician Programmer
CP
Patient Programmer
Charger
PPC
Perc Leads
Paddle
Leads
Pocket
Programmer
PoP
External
Pulse
Generator
EPG
Anchors
Trial Cable
Extensions
Implantable Pulse Generators
IPG
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Algostim System Innovations

IPG

- 24 Channels
- Two Configurations
- Tri-Pole Capability
- Smallest Volume
- Thinnest Implant
- Largest Battery Capacity
- Broadest Parametric Ranges
- Bi-Directional Recharge
- MICS Wireless Telemetry
- Embedded Program Memory

Leads

Perc Leads

- 12 & 8 Contact Arrays
- Dual Coil Construction
- Body Compliant
- Lead ID System

Paddle Leads

- Thinnest >50%
- Smallest Volume >50%
- Body Compliant
- Multi-Midline Positioning
- Stylet Steering

Programmers/Software

- Color Touch Screen
- 3D Pain Mapping
- 3D Stim Mapping
- 3D Overlap Scoring
- CASP Algorithm
- CASP Feedback Device
- Camera / Barcode Reader
- Monitor Mirroring
- Combined Programmer / Charger
- Key Fob Programmer

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Implantable Pulse Generator

Features

- 24 channels
- Two header configurations *(2x12 & 3x8)*
- Rechargeable battery
- Largest battery capacity
- Broadest parametric ranges
- Smallest & thinnest device
- Independent current sources
- Deep discharge recovery
- Constant current output
- MICS wireless telemetry
- Safety thermistor
- Bi-directional recharge
- Embedded memory

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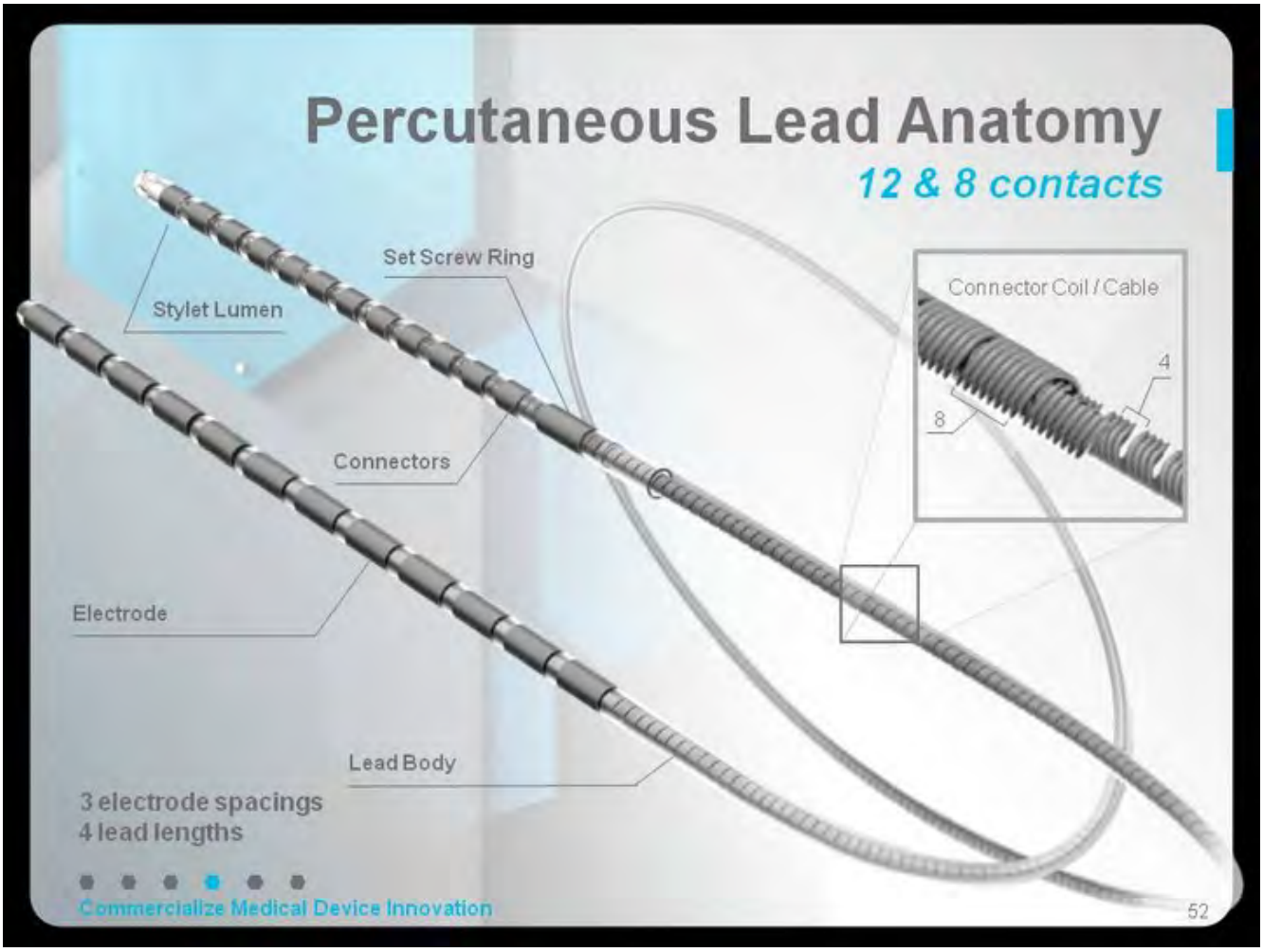
Percutaneous Lead Anatomy
12 & 8 contacts
Set Screw Ring
Stylet Lumen
Connector Coil / Cable
4
8
Connectors
Electrode
Lead Body
3 electrode spacings
4 lead lengths
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Lead Design Progression
Past
Present
Future
COIL DESIGN
COIL STRUCTURE
4-Electrode Leads
UNCONSTRAINED
STRAIGHT WIRE
8-Electrode Leads
INDEPENDENT
STRAIGHT WIRE
8 & 16-Electrode Leads
algostim
COIL IN COIL DESIGN
COIL STRUCTURE
8 & 12-Electrode Leads
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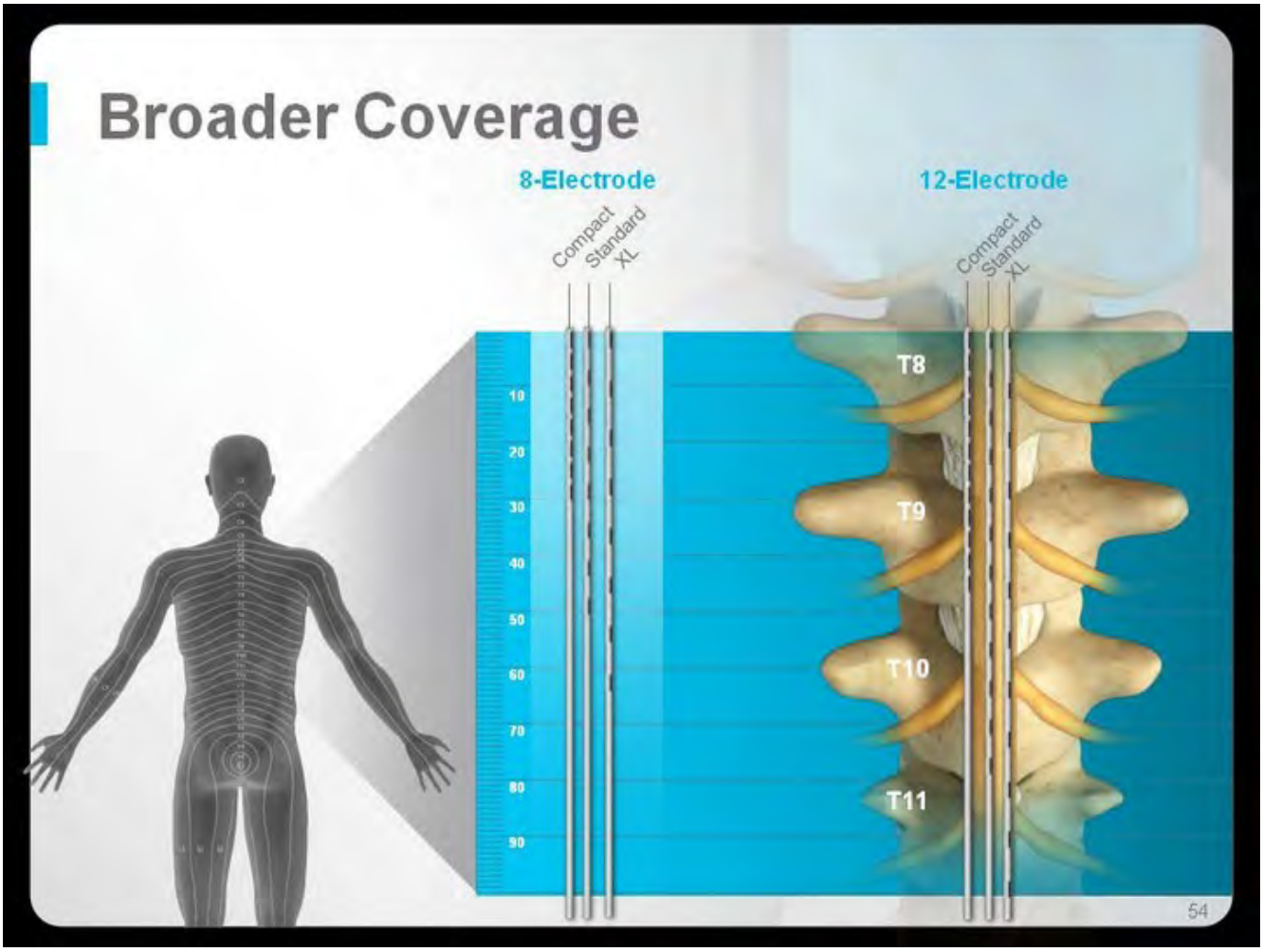
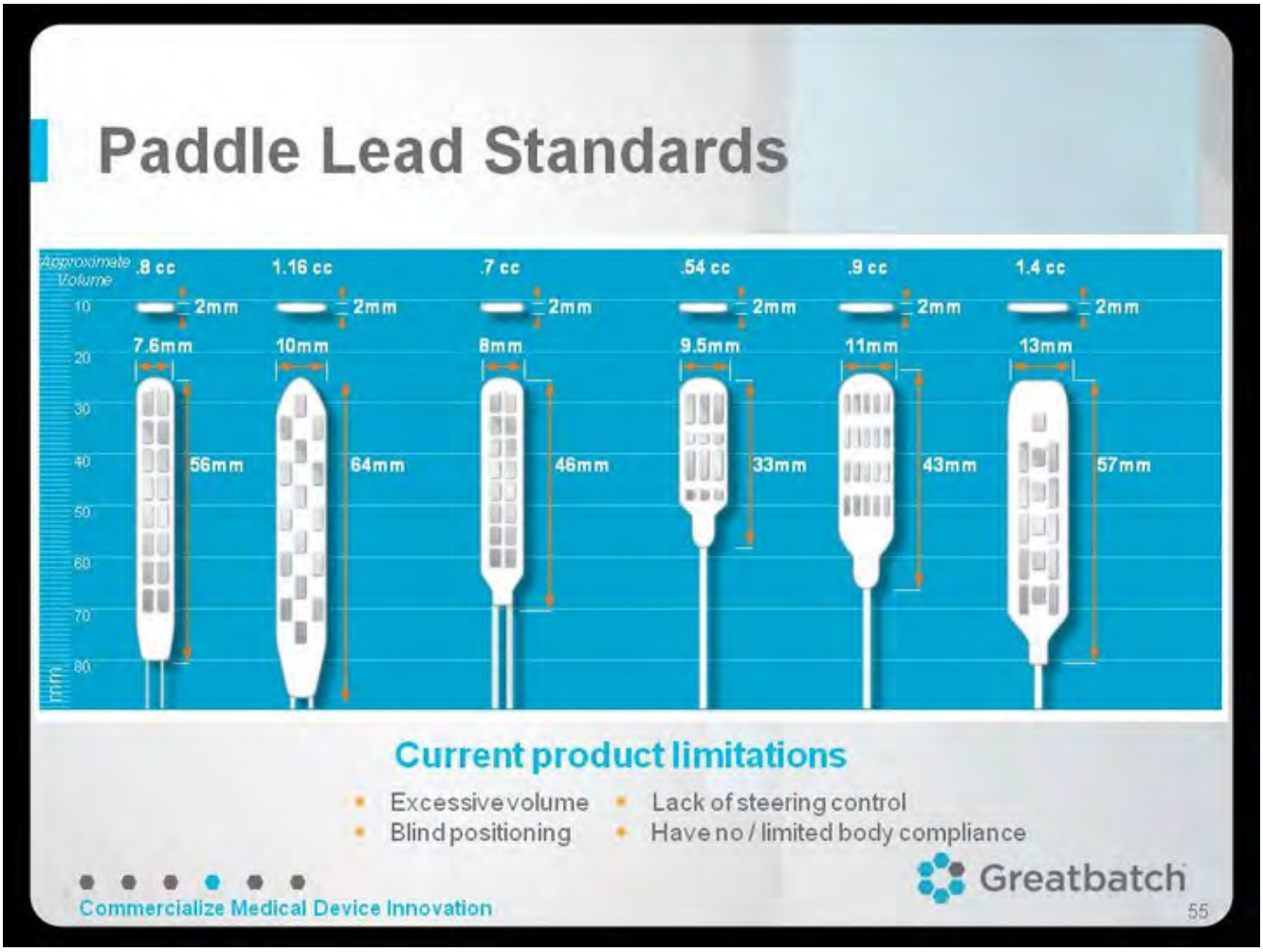

Broader Coverage
8-Electrode
12-Electrode
Compact
Standard
XL
Compact
Standard
XL
T8
T9
T10
T11
10
20
30
40
50
60
70
80
90
54


Paddle Lead Standards
Approximate Volume
.8 cc
1.16 cc
.7 cc
.54 cc
.9 cc
1.4 cc
2mm
7.6mm
10mm
8mm
9.5mm
11mm
13mm
56mm
64mm
46mm
33mm
43mm
57mm
mm
Current product limitations
Excessive volume
Blind positioning
Lack of steering control
Have no / limited body compliance
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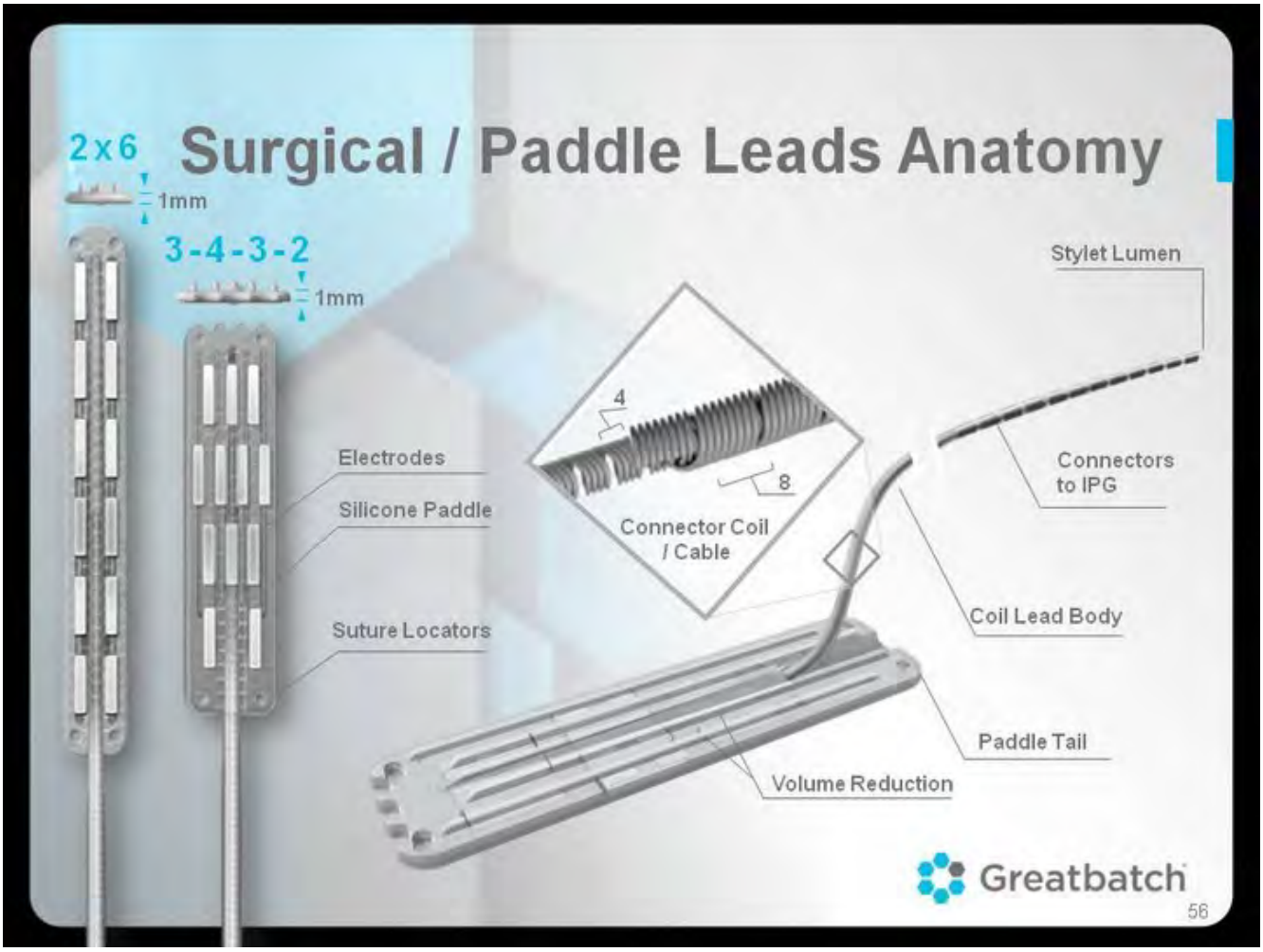
Surgical / Paddle Leads Anatomy
2x6
1mm
3-4-3-2
1mm
Stylet Lumen
4
8
Connector Coil / Cable
Connectors to IPG
Electrodes
Silicone Paddle
Suture Locators
Coil Lead Body
Paddle Tail
Volume Reduction
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Thin Profile Paddle Leads
Current Products
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TECHNOLOGIES
Epidural space
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Programmer Family
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Patient Programmers

Pocket Programmer

- Discrete key fob design
- Daily control functions
- Rechargeable device
- MICS wireless telemetry
- Quick stim-off

Programmer Charger

- Programming and recharging device
- Full control programming options
- Color touch screen interface
- MICS wireless telemetry
- Recharge location visual feedback
- Rechargeable device
- Quick stim-off

Clinician Programmers

Clinician Programmer

- Resistive color touch screen
- External monitor connection
- Embedded camera
- Rechargeable device
- SD card storage
- Bluetooth communication
- MICS wireless implant telemetry
- Quick stim-off

Patient Feedback Tool

'Computer Assisted Stimulation Programming'

- Automatic impedance check
- Stimulation threshold determination
- Patient identifies best stimulation coverage / optimal parasthesia patterns
- Bluetooth communication
- LED feedback
- Quick stim-off

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Clinician Programmer Software

Software Features

- 3D Virtual Environment
- 3D Pain Mapping
- 3D Stimulation Mapping
- 3D Overlap Scores
- Computer Assisted Stimulation Programming *('CASP')*
- Presets for routine intra-operative trials
- Visual implant selector
- Patient programming history
- Secure log-ins
- Patient device emulator
- Auto report generation
- Bluetooth printer

Pain Mapping

Product Selection

CASP

Set Program

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Pulse Generators
Leads & Extensions
Programmers
IPG
Thermistor
MICS Wireless Telemetry
Deep Discharge Recovery Battery
Bi-Directional Recharge
High Voltage Protection Circuitry
Independent Current Sources
Internal Self-Checks
Impedance Check
Quick Stim-Off by External Devices
EPG
Internal Self-Checks
Easy Trial Cable Connect/ Disconnect
Quick Stim-Off
Program Memory
Safety Features
Perc & Paddle Leads, Extensions
Minimize Size
Coil In Coil Design
Multiple Electrodes
Active Capture Set Screw (Extension)
Accessories
Stylets
Multiple Tips
Introducer Needle
Flared & Radius Tip
Tunneling Tool
Malleable Rod & Tip
2 Length Options
Accommodates 3 Leads
All Programmers
Battery Status of IPG
Paired to Single IPG / EPG
MICS Wireless Telemetry
Quick Stim-Off
Programmer Charger
Rechargeable Device During IPG Recharge
Recharge Location Feedback
Recharge Temperature Sensing
Clinician Programmer
Log-Ins for Different Users
Monitor Mirroring
Camera / Image Storage
Charge Density Limits
Model Based Implant Selection
Patient Feedback Tool
'CASP' (Computer Assisted Stimulation Programming)
stim
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Regulatory Plan

Proposed Indication

The Algostim Spinal Cord Stimulation *(SCS)* System is indicated as an aid in the management of chronic intractable pain of the trunk and/or limbs, including unilateral or bilateral pain associated with failed back surgery syndrome, intractable low back pain and leg pain.

History

Company *(Product)*	Original PMA	Supplements
Medtronic (Itrel)	1984	233+
St. Jude (Genesis)	2001	65+
Boston Scientific (Precision)	2003	153+

Plan

- Pursue PMA approval *(literature based PMA)*
- Utilize pre-IDE / PMA process
- Obtain CE mark
- TÜV *(notified body)* utilizing modular review process

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Next Generation

IPG Embedded Capabilities

- High Frequency Stimulation
- 3-axis accelerometer
- Novel waveforms & wave shaping

Lead Designs

- Thin-film perc lead designs
- 24+ electrode paddle leads

Thin-Film Paddle: 24+ Electrodes | Planar | Cylindrical

System Level

- MRI conditional system

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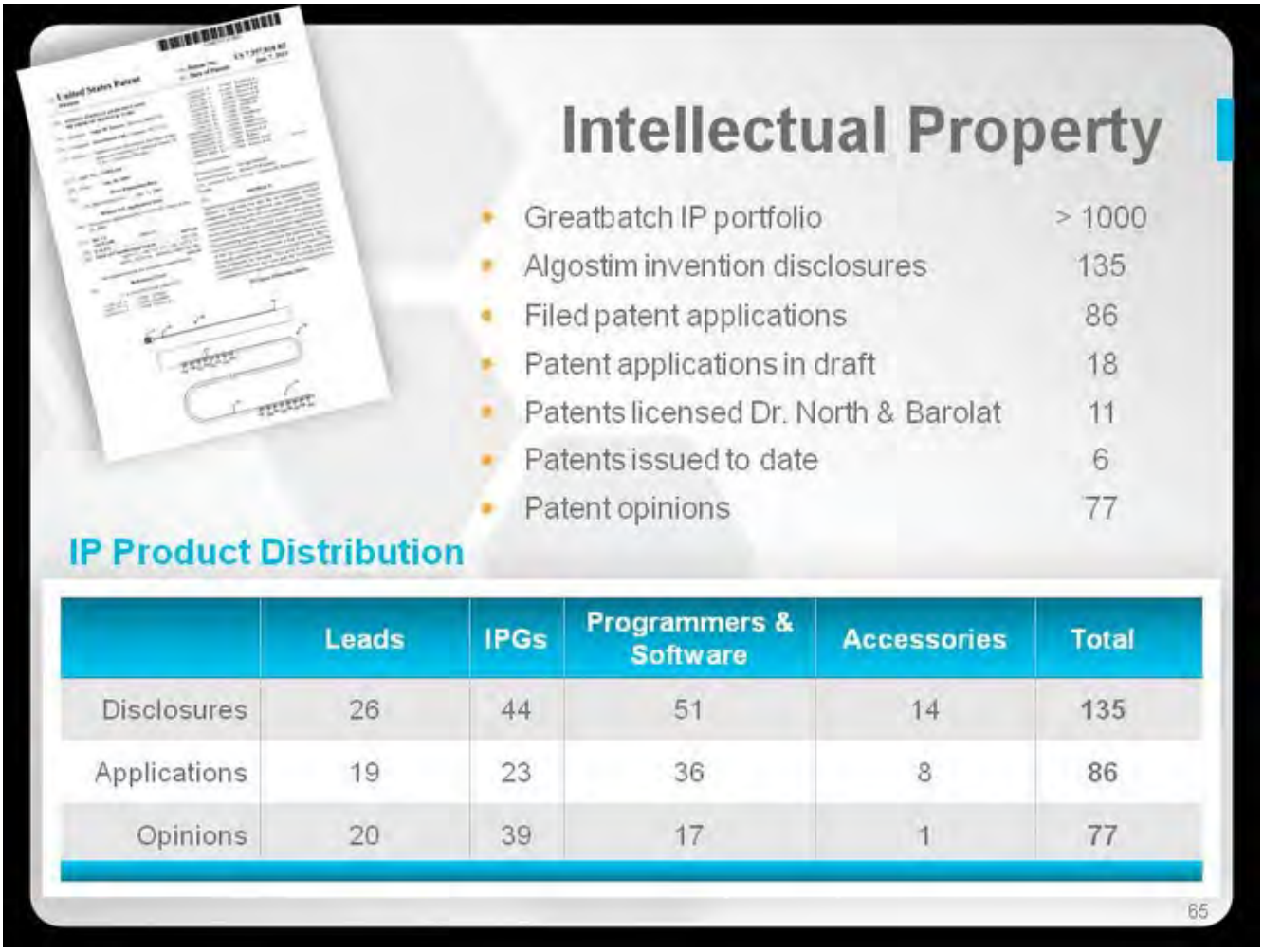

	Leads	IPGs	Programmers & Software	Accessories	Total
Disclosures	26	44	51	14	135
Applications	19	23	36	8	86
Opinions	20	39	17	1	77


Leveraging Our Capability
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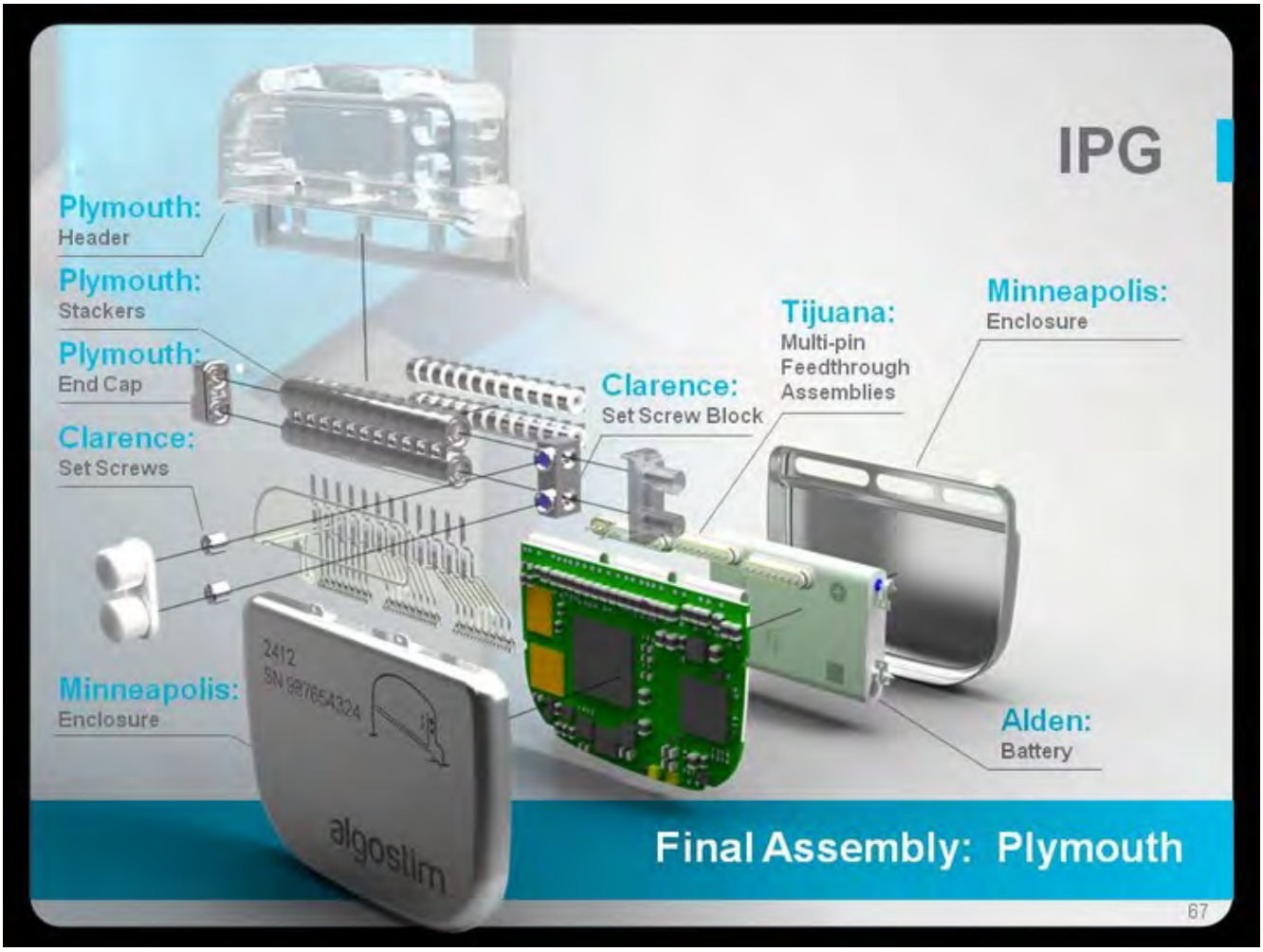
IPG
Plymouth:
Header
Plymouth:
Stackers
Plymouth:
End Cap
Clarence:
Set Screws
Minneapolis:
Enclosure
Clarence:
Set Screw Block
Tijuana:
Multi-pin
Feedthrough
Assemblies
Minneapolis:
Enclosure
Alden:
Battery
2412
algostim
Final Assembly: Plymouth
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Leads & Extensions
Extensions
Paddle Leads
Percutaneous Leads
Manufacturing: Plymouth
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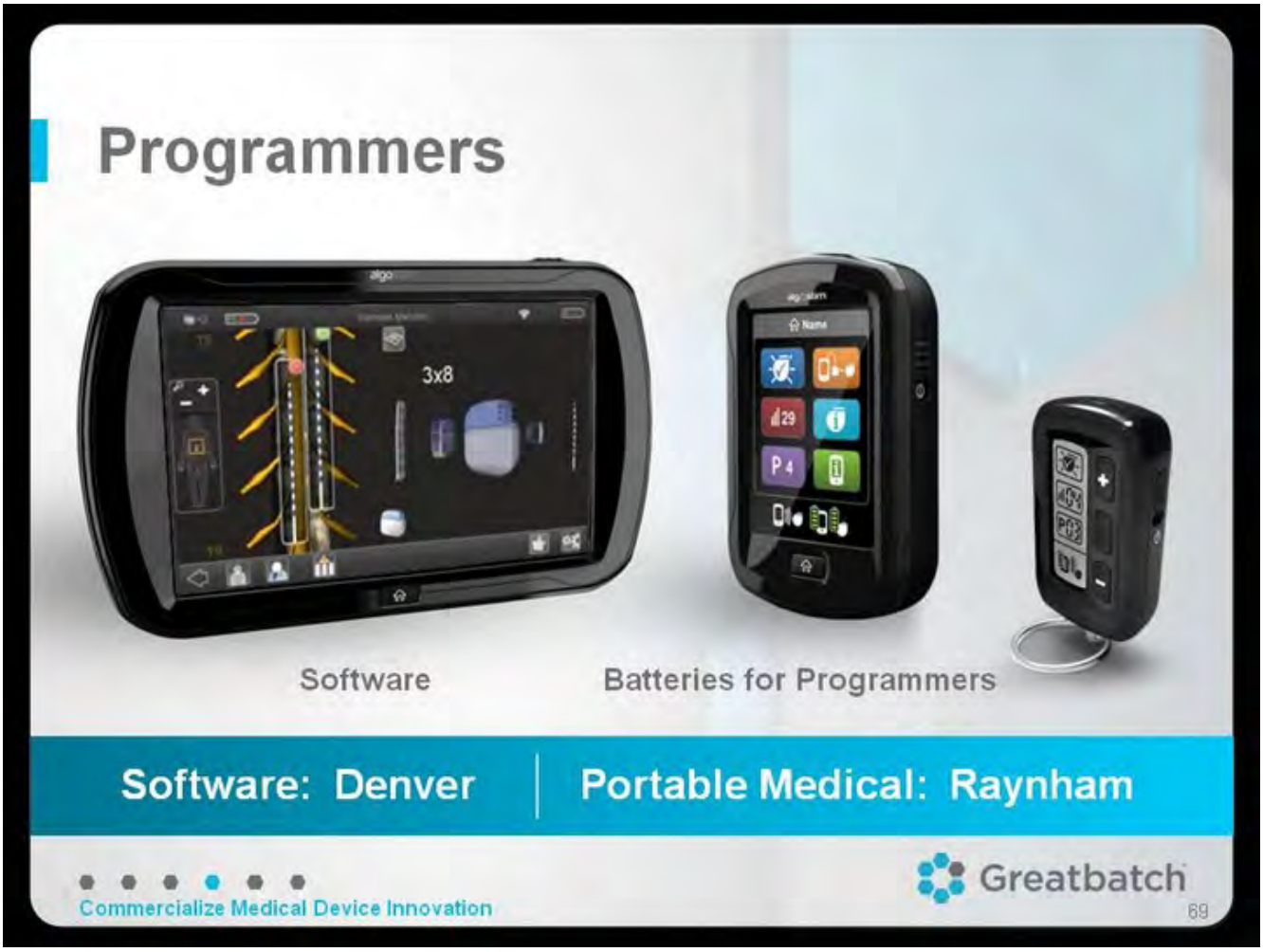
Programmers
3x8
Software
Batteries for Programmers
Software: Denver
Portable Medical: Raynham
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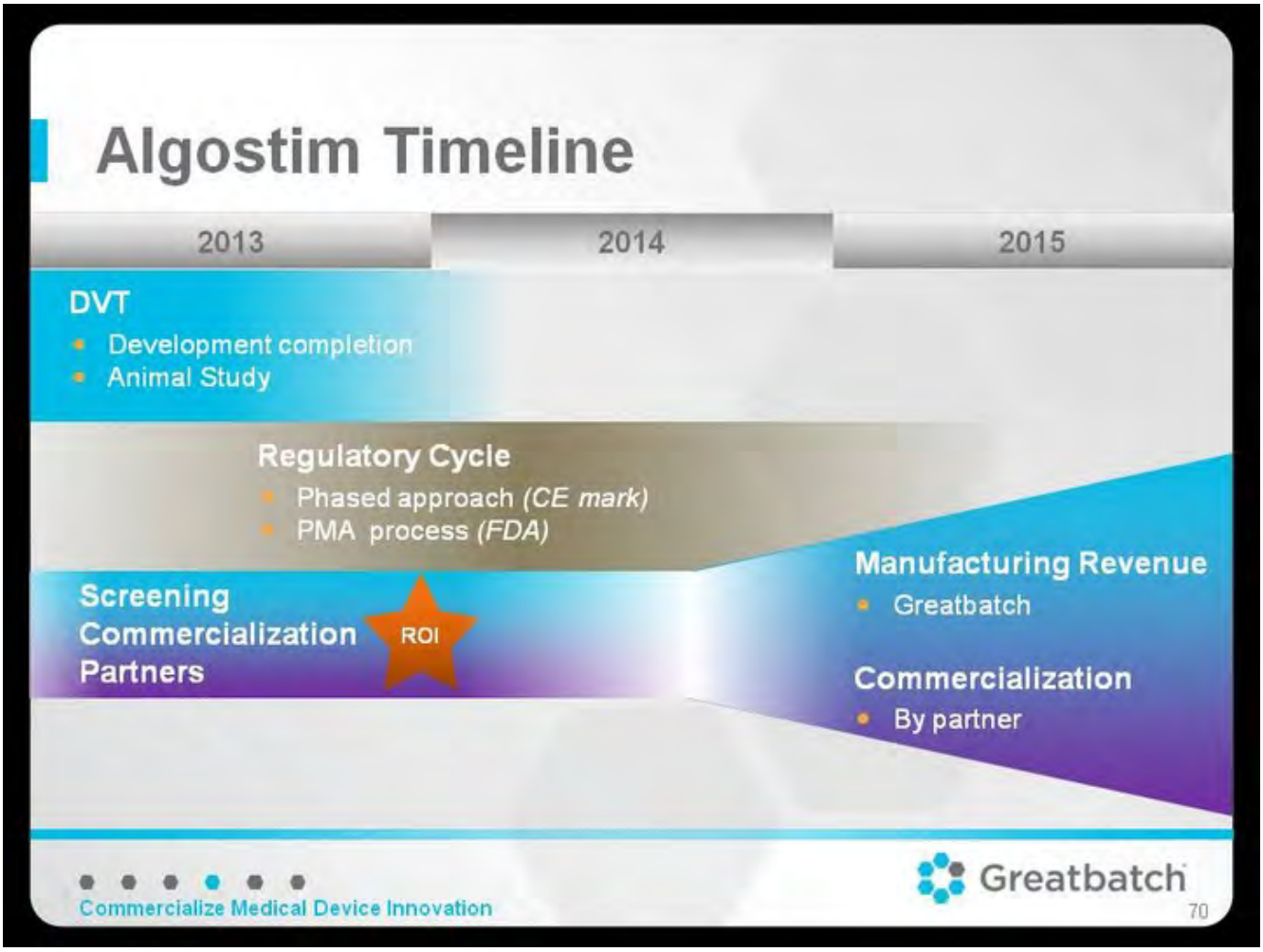
Algostim Timeline
2013
2014
2015
DVT
Development completion
Animal Study
Regulatory Cycle
Phased approach (CE mark)
PMA process (FDA)
Screening
Commercialization
Partners
ROI
Manufacturing Revenue
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Commercialization
By partner
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Strong Value Proposition
Leverage Capabilities
Strong Value Proposition
Technology Innovation
Addressing Unmet Needs
Future Opportunities
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Impact to Customer Groups

Physicians

- No change to implant procedures
- Improved body compliant lead design & steering control
- Broader stimulation coverage
- Multiple IPG options
- Long list of Safety Features
- Highly visual & intuitive programmers
- Intraoperative visibility and engagement of surgical staff
- Patient interactive programming

Patients

- Portable & Discrete External Products
- Simple and familiar user interfaces
- Comfortable system for screening, recharge and daily transport
- Fits existing reimbursement standards

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Value Proposition

"A highly differentiated complete SCS system and platform with extensive offering of innovation, IP, advanced safety features, and future generation capabilities in the fast growing $1.4B SCS market"

- 1% market share represents $17M revenue to partner in 2015
- Highly under penetrated market *(<10%)*
- History of large market share shifts with technology innovation
- Strong SCS growth rate *(7%+ CAGR)*
- Extensive IP portfolio
- Gen 1: Technology innovation will drive market share
- Gen 2: Breakthrough technology can enable market leadership

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Leverage Medical Device System Capabilities

algostim TECHNOLOGIES
Relieving Pain. Restoring Life.

Future NewCo's

CardiomoniX
Monitoring the Rhythm of Life

- Deliver on complete system initiative
- Investment in capabilities
- Platform technology for additional opportunities

- Approved & emerging indications

Approved
- Deep Brain
- Vagus
- Spinal Cord
- Sacral
- Percutaneous Tibial

Emerging
- Cortical
- Peripheral
- Carotid
- Sinus
- Hypoglossal & Phrenic
- Gastric
- Pudendal

- Entry into cardiac systems
- Implantable Loop Recorder
- Address unmet needs
  - Remote monitoring
  - High quality data

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