

Medical Device Opportunities Asia & Japan

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(*Greg-san*)



Guidant Business Units

VI



**VASCULAR
INTERVENTION**

ES



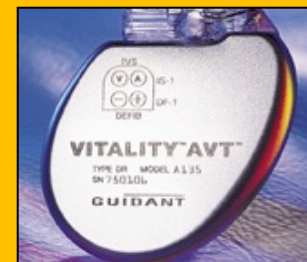
**ENDOVASCULAR
SOLUTIONS**

CS



**CARDIAC
SURGERY**

CRM



**CARDIAC RHYTHM
MANAGEMENT**

Asia Geography 101



<u>Country</u>	<u>Population</u>
China	1.3 B
India	1.1 B
Indonesia	225 M
Pakistan	165 M
Bangladesh	147 M
Japan	128 M
Thailand	63 M
South Korea	49 M
Malaysia	27 M
Taiwan	23 M
Sri Lanka	20 M
Hong Kong	7 M
Singapore	4.7 M
U.S.A.	300 M

Changing Lifestyles



Country	Per Capita Income (USD)	% of Males Who Smoke	# of KFC's in 2010
China	1,740	67%	3,244
India	720	47%	105
Indonesia	1,280	58%	396
Thailand	2,750	49%	410
Malaysia	4,960	49%	514
South Korea	15,830	65%	142
Singapore	27,490	32%	79
Hong Kong	27,670	N/A	71
Japan	38,980	53%	1,140
U.S.A.	43,740	24%	4,979

“One day we will have more restaurants and more profits in China than we do in the U.S.”

David C. Novak
Chairman & CEO, YUM! Brands Inc.
2006 Annual Report

China Healthcare Market

- Before 1980 nationwide healthcare coverage
- In 1980's hospitals move market-oriented system
 - 65,000 hospitals focus on generating revenues/profits
 - Result: over delivery of sophisticated care/tests
 - > 50% of hospital revenues from drugs
- Insurance Coverage
 - 65-70% of patients have no insurance
 - Insurance only pays 60-80%
- Patients
 - Angry about corruption, high prices
 - 50% of patients do not seek treatment
- Government taking positive action
 - Expanding coverage, reducing prices, punishing corruption



Case Study - DES In China

- 2004

- Two U.S. competitors
- Patient price \$3,500
- Rapid adoption rate

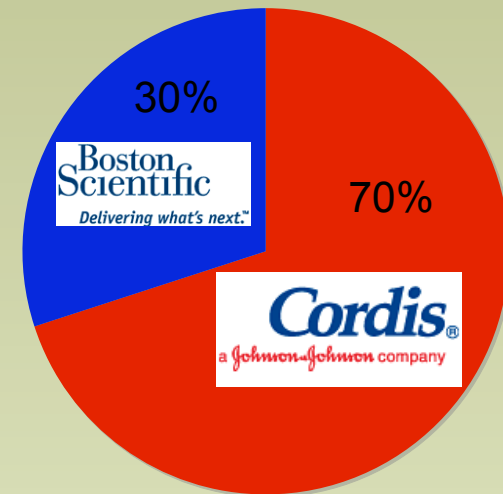
- 2010

- 3 Chinese, 3 U.S. competitors
- 80% share by local manufacturers
- 5 other local mfgs. registering
- Patient price: \$2,000 – \$2,200
- 95% adoption rate

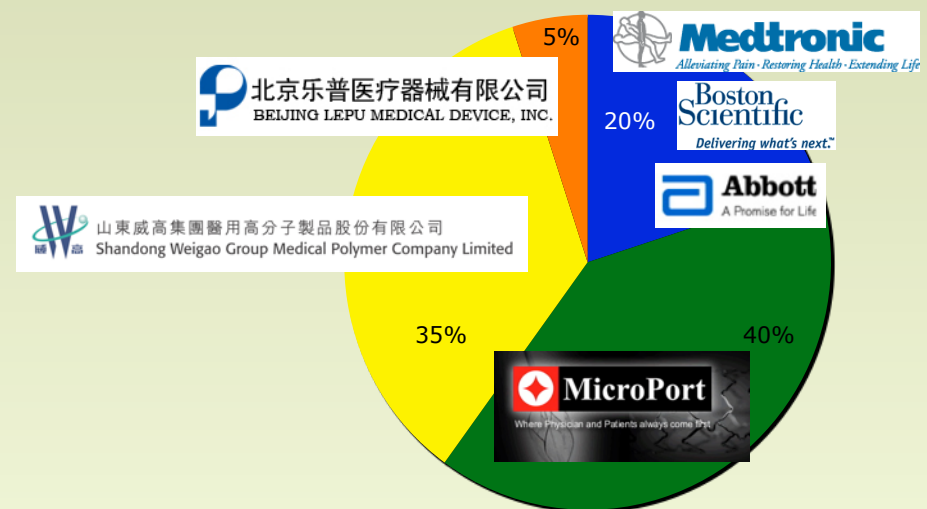
- Local Manufacturers

- Copy-cat older stent designs
- Expats return home
- Go direct, 30-50% lower price
- Applying for CE Mark

2004 China DES Market Shares



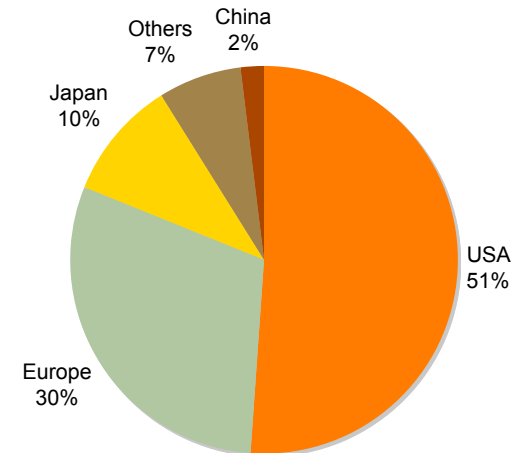
2010 China DES Market Shares



China's Medical Device Manufacturing Sector

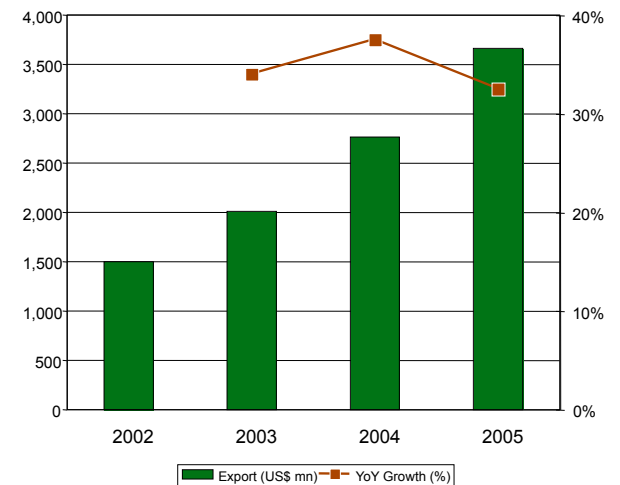
- Special economic zones established
- Exports growing for high-labor content, OEM products/subassemblies
- Current challenges:
 - Quality system in place to meet FDA regs.
 - IP protection
 - Low volume production quantities
 - Corruption
 - Established China supplier base
 - Foreign imports perceived as premium products
 - Language
- Local manufacturers taking market share

Global Medical Device Production (2005)



Source: US Int'l Trade Commission

China's Medical Equipment Exports



Source: Credit Suisse Research

Case Study - Pacemakers in China

- **Strategic Intent**

- Manufacture older, de-featured pacemaker for China and developing markets
- Demonstrate Medtronic's commitment to long-term leadership in China

- **Investment**

- \$10 million, 22,000 sq. ft. pacemaker plant opened outside of Shanghai in 1997
- CHAMPION pacemaker produced for China and developing nations

- **Outcome**

- Chinese doctors/patients did not want low-end pacemaker
- Facility not running at capacity, primarily used for public relations



India Healthcare Market

- Hospitals
 - 16,000, 70% public/30% private
 - Large hospital groups (Apollo, Fortis)
 - Government sector is low on quality & availability
- Insurance coverage
 - 90% pay out-of-pocket
 - 10% covered by private insurance or government reimbursement
- Patients
 - Shop for best price, negotiations common
 - Funds “pooled” among family members

Procedure	Cost in India	Cost in USA
Coronary Bypass	\$6,600	\$60,000
Bone marrow transplant	26,000	250,000
Liver transplant	40,000	500,000
Neurosurgery	8,000	29,000
Knee replacement	6,500	22,000
Cosmetic Surgery	2,000	20,000

Medical Tourism In India

International Patient Services

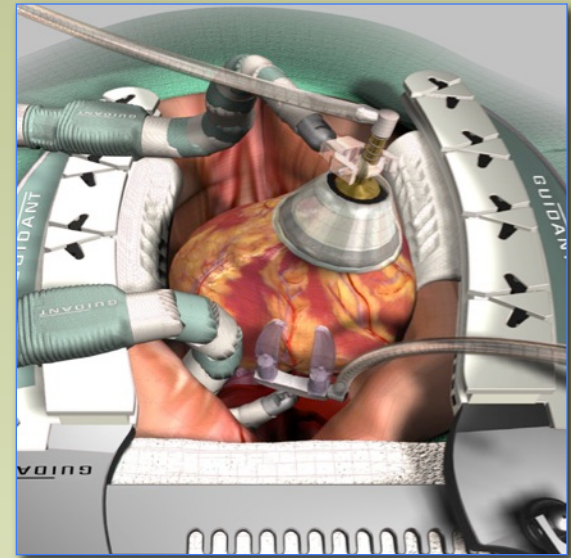
- **Initial screening** to diagnose and assess the nature and severity of the ailment
- **Telemedicine evaluation** and recommendation
- **Travel arrangements** made for transfer to Delhi on a turnkey basis includes:
 - visa, ticketing, pick up at airport, money transfer and exchange, ATM withdrawals
- Where existing, **international insurance** cover will be respected.
- Diagnosis and treatment at the hospital
- Arrangements for the return journey
- Recover in comfort:
 - **Large comfortable rooms**
 - **Global standards for hygiene/ infection control**
 - World class hospital



Dr. Ashok Seth
Chairman & Chief Cardiologist

India Case Study

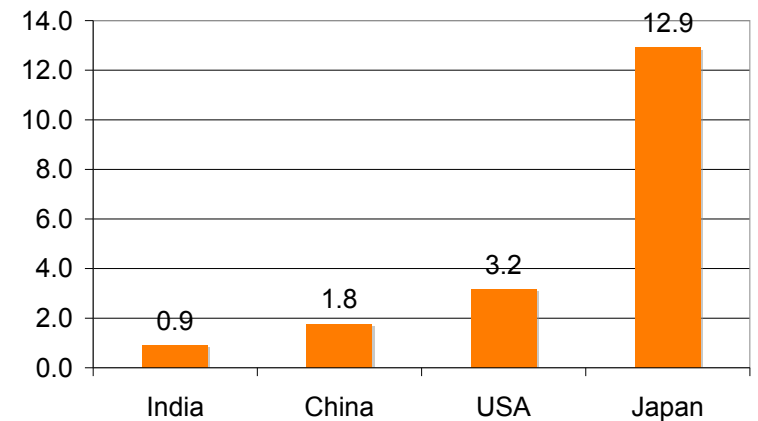
- Cardiac surgery in India
 - 70% done off-pump (beating heart)
 - CABG cost \$7,000
- Business case
 - Establish direct sales force
 - Stabilizer ASP: \$950
 - Expected market share: 22% - 40%
 - Yearly OPEX investment: \$105-115K
 - Incremental revenue/yr: \$225K-690K
- Outcomes
 - Entered business in 2003
 - Stabilizer reuse: **25-30 times**
 - Exited business in 2005
 - Lesson: Understand market dynamics!



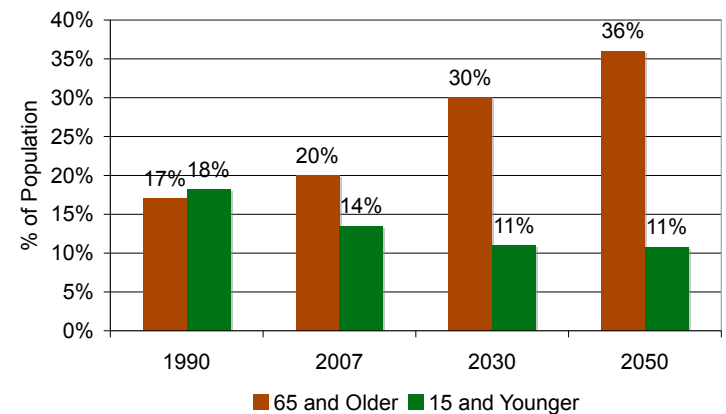
Japan Healthcare Market

- Hospitals
 - 8,883, public/private mix
 - Equal access across Japan
 - Average hospital stay: 39.1 days
 - Complex dealer network
- Insurance coverage
 - Universal coverage for all citizens
 - Patients pay 10 - 30% of cost
 - Aging population & stagnant economy taxing system
- Patients
 - Hold doctors in high esteem, lawsuits rare
 - Not vocal advocates for medical technology

Hospital Beds/1,000 People by Country



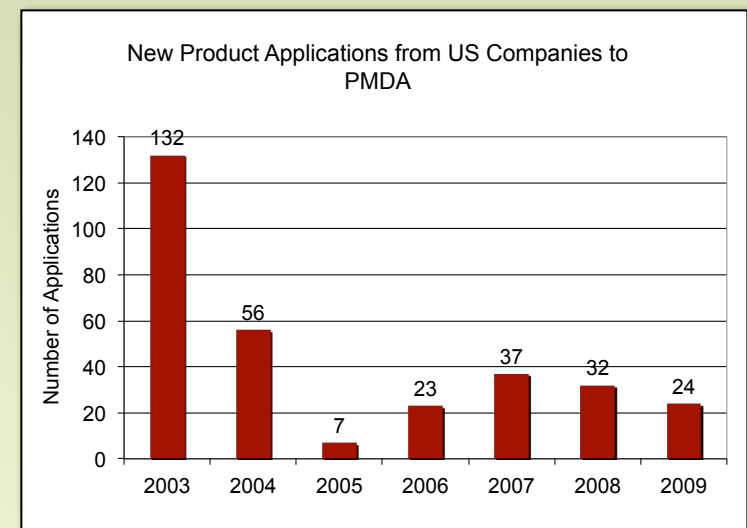
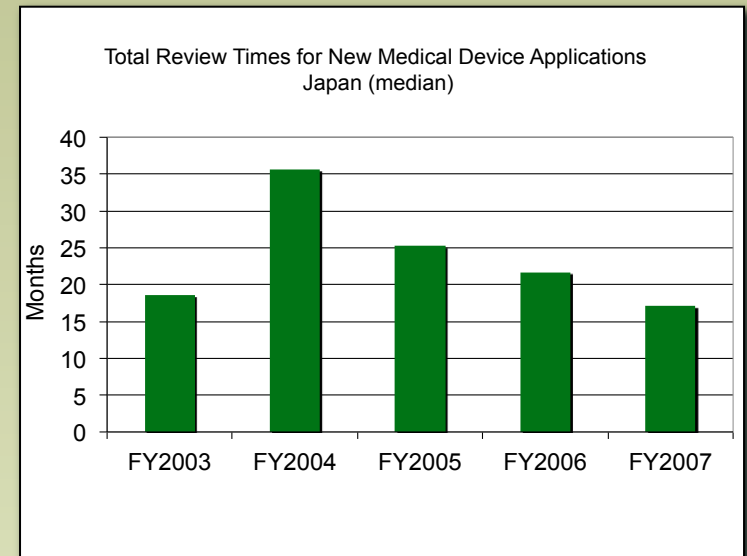
Aging In Japan



Source: National Institute of Population (Japan)

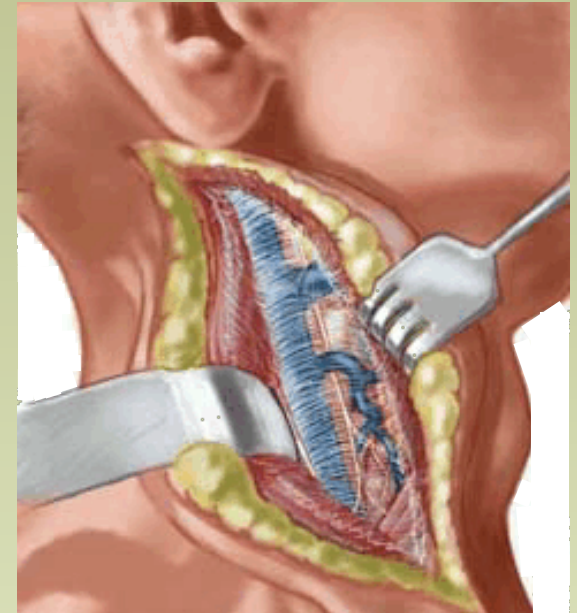
Product Approvals in Japan Require Patience

- Product approvals
 - Unpredictable and time consuming
 - Local trial data often required
 - New technology not rewarded
- Reasons for long delays
 - Too few, experienced reviewers (29 - PMDA, 300 - FDA)
- Market impact
 - Companies not enthusiastic about introducing new technology
 - High velocity product development companies impacted most
 - Big loser is patients, leading edge technology not available or generations behind

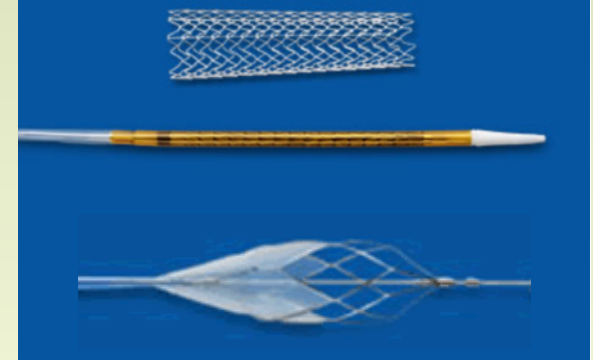


Japan Case Study

- Carotid Artery Stenting
 - Minimally invasive alternative to carotid endarterectomy
 - Clear advantages over endarterectomy
 - Approved in U.S. in 2004
- Conducted Japan clinical trial
 - 60-patient multi-year trial
- Business case did not justify filing
 - Lengthy & uncertain approval process
 - New technology reimbursement
 - Increased costs of doing business (PAL)
- Outcome
 - Japanese patients do not have access to leading edge technology



RX ACCULINK
Carotid Stent
System



Are Asian Patients & Physicians Different?

- Patients
 - Normally pay for product in Asia
 - Growing middle class in most countries
 - May shop around for best deal
 - Malpractice lawsuits extremely rare
 - Great unmet medical need among poor
 - Hold physicians in high regard
- Physicians
 - High percentage with international training and work experience
 - “Jack-of-all-trades”
 - Will push for lower prices
 - Eager to learn new techniques/procedures
 - Usually not questioned on clinical recommendations
 - Approachable and friendly



Timing Could Be Everything



“Things are changing so fast that, if you haven’t been to Asia and Japan this year, you haven’t been to Asia and Japan.”