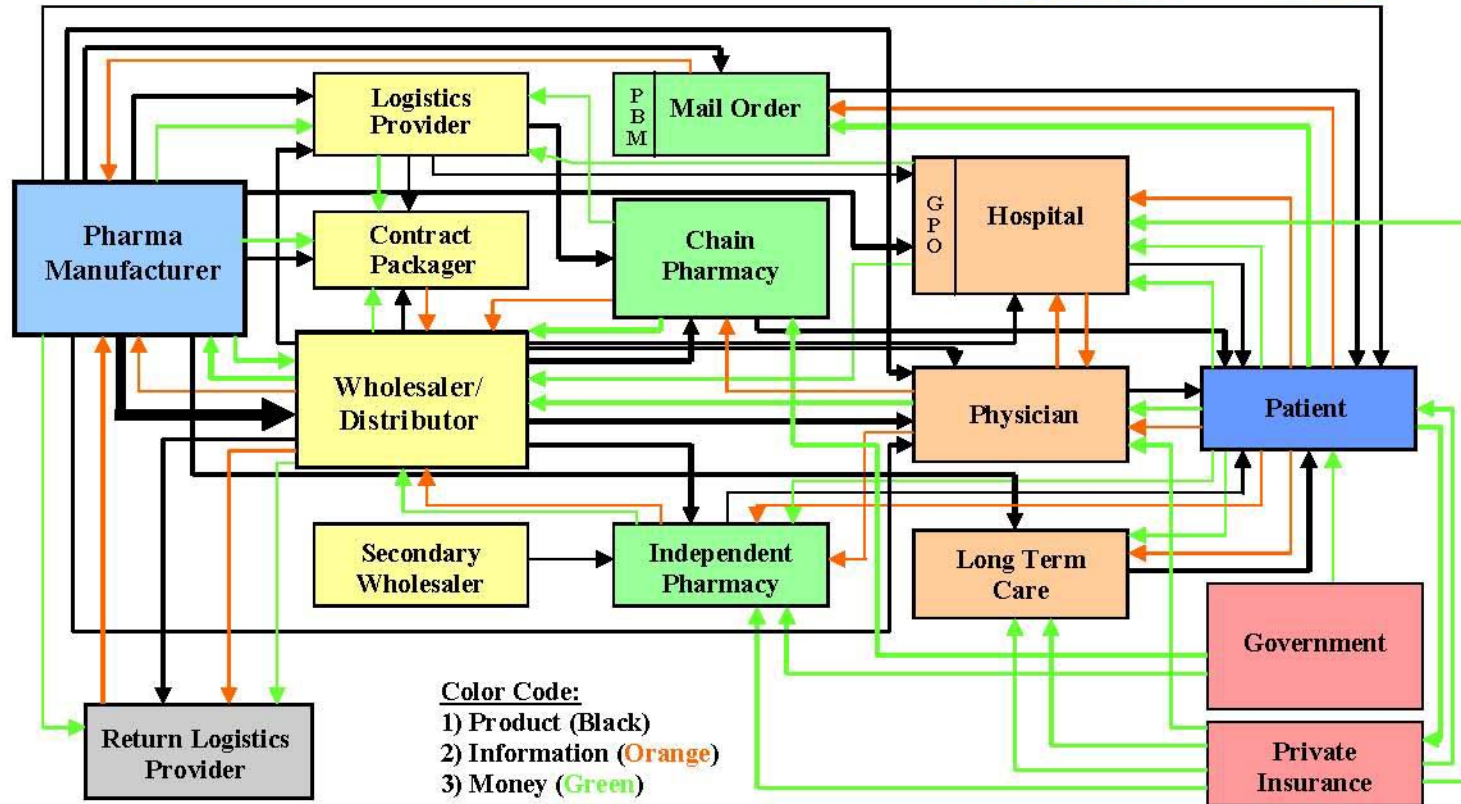


PLANNING FOR TEMPERATURE- CONTROLLED FUTURE DEMAND

14,000 SUBSCRIBERS; COMMERCIAL OPS,
SALES/MARKETING, SUPPLY CHAIN, REGULATORY
COMPLIANCE

PHARMA **C** **EU** **TICAL**
Business Strategies for
Pharma/Bio Success **COMMERCE**

The BioPharma Supply Chain with Its 2-way Flow of 1) Products, 2) Information and 3) Money



Copyright 2006, Pharmaceutical Commerce

Major Pharma Distribution Outlets

	2008	2007	2006	2006	2005	2004
TOTAL US Prescription market	291.5	287.6	276.6	276.6	253.9	239.9
(billion\$)						
Chain stores	101.8	98.1	96.5	96.5	88.3	84
Mail service	46	45.1	42.7	42.7	38.3	35.4
Independent pharmacy	38.1	38.7	35.7	35.7	34.5	33.5
Clinics	33.8	33.5	30.4	30.4	25.1	22.3
Non-federal hospitals	28	27.4	26.9	26.9	25.9	24.5
Food stores	20.9	22	22.3	22.3	21.4	20.8
Long-term care	14.1	13.7	13.1	13.1	12.1	11.1
Federal facilities	3.9	4.1	3.7	3.7	3.6	3.6
Home healthcare	2.6	2.6	2.5	2.5	2.4	2.4
HMO	1.3	1.5	1.6	1.6	1.5	1.5

Source: IMS Health, IMS National Sales Perspectives

PHARMA **CEUTICAL**
 Business Strategies for
 Pharma/Bio Success **COMMERCE**

Temperature-controlled Bio/Pharma

- Blood, blood products, tissues
 - “Conventional” pharma (insulin, antibiotics, temp-sensitive small molecules, vaccines)
 - Biotech, large molecules
- Clinical trial materials (CTMs)

INDUSTRY DRIVERS

- Growth in products being marketed
- Growth in specialty distribution/specialty pharmacy
- Internationalization of markets and APIs
- Increased regulatory scrutiny

THEN: Parke-Davis smallpox vaccines 1899:

- “The proper storage of vaccine by our patrons is of the utmost importance.

Vaccine is a most delicate and perishable product. *Keep it in a cool dark place* (best of all, in a refrigerator) . . . avoid exposing it for any length of time to a temperature above 70° F.”

NOW: Biotech Growth

-7 of top 10 products in 2010 will be temp-controlled biopharmaceuticals:

-AVASTIN (Roche)

-HUMIRA (Eisai)

-RITUXAN (Roche)

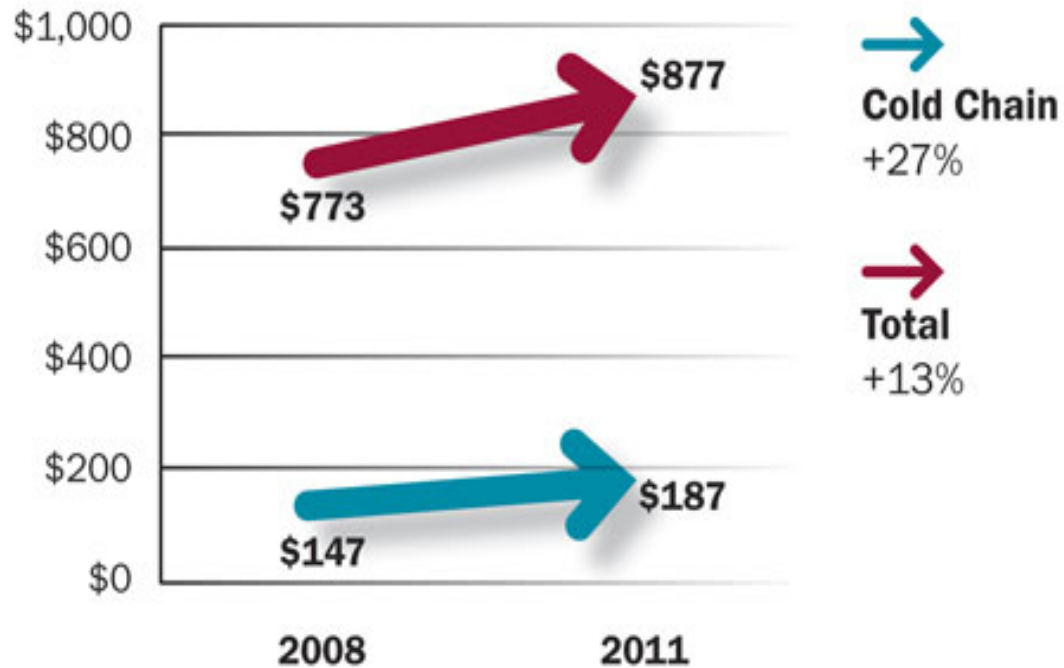
ENBREL (Amgen, others)

LANTUS (Sanofi-Aventis)

HERCEPTIN (Roche)

REMICADE (Tanabe Pharma)

Fig. 1. Global biopharma Sales 2008-2011 (\$billions)



Plus Blood Products, Vaccines, CTMs

- Dendreon “prostate cancer vaccine”:
two-way shipment of patient blood
plasma, approved May 2010
- CTM market \$50 billion 2008

**-\$246 billion total in
products in 2011**

Biopharma Logistics Market

Fig. 2. \$5 billion was spent on global cold-chain logistics in 2008, in a total biopharma logistics market of \$43 billion

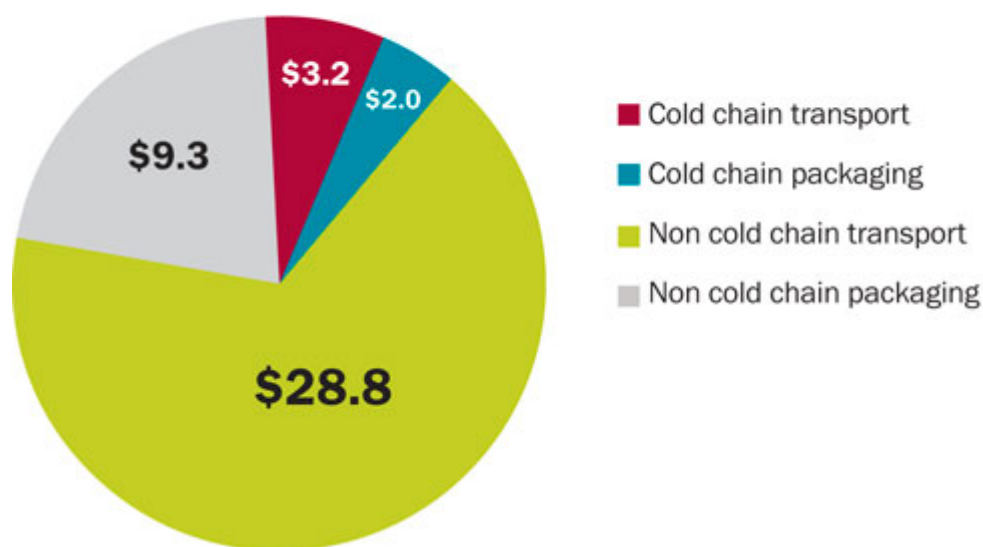
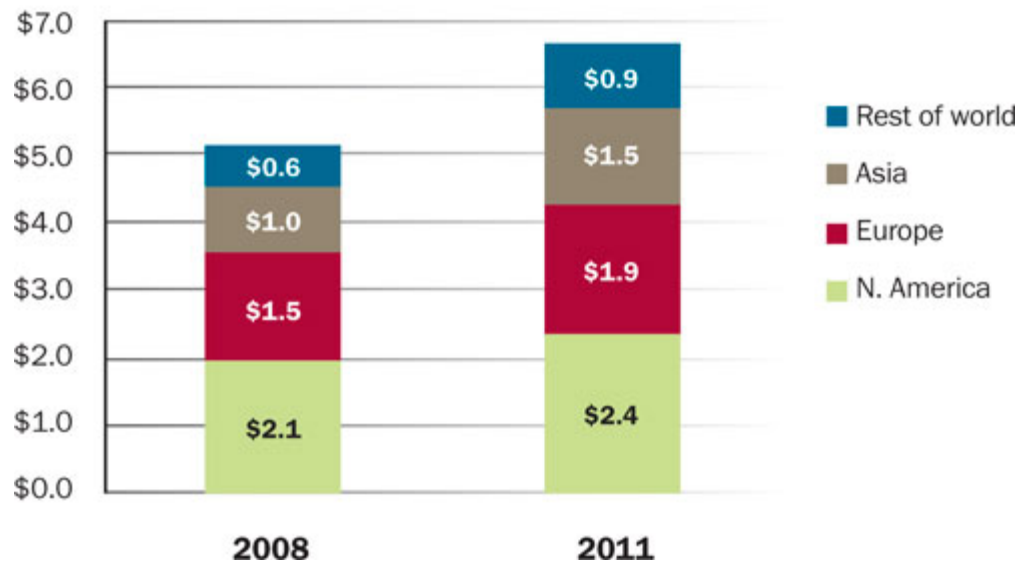


Fig. 3. Cold-chain logistics spending will expand from \$5.1 billion in 2008 to \$6.6 billion by 2011



REGULATORY TRENDS

- New World Health Organisation
“Good Distribution Practices”
review in 2009
- PDA ‘Technical Paper #39’
- US Pharmacopeia <1079> in
2010

New Processes, Not New Technology

-USP <1079>:

- Storage Management System (SMS)
- Transportation Management System (TMS)
- SMS + TMS = Quality Management System (QMS)

Coming into View: Controlled Room Temperature (CRT)

Recall distribution modes:

- PBMs and US Postal Service
 - Home Health delivery
 - Sample distribution
- Specialty clinical distribution

Conclusion: Double-Digit Growth (10%+) in Equipment, Packaging, Services, 2008- 2011

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-THANK YOU!

