

THEME

Applying Best Practices in Healthcare Delivery

- 21-23 July 2009
- Kuala Lumpur Convention Centre Malaysia



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Pharmacy
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Tailored Partnerships
Total Solutions



Objectives

- What's the current market environment & concerns?
- Why is aseptic compounding important?
- What is PIVA? How does it help?
- Strategic Direction

REGULATORY

- Increased focus on Occupational Health & Safety (OH&S) challenges
- Patient & staff concerns on Medication Safety & Risk Management
- Increased emphasis on hospital accreditation e.g. JCI which have strong focus on medication safety protocols & infrastructure, MSQH.

PATIENT DEMOGRAPHIC CHANGES

- Aging population coupled with increased incidence of cancer detection & treatment
 - Demand on Oncology service provision
- Increased public awareness & education = increased demands on healthcare
 - KPIs for public dissemination
 - Costs of treatment, total cost of stay, etc.

HOSPITAL INFRASTRUCTURE CHALLENGES

- Increased focus on right-sited care to improve cost-effectiveness of healthcare provision
 - Shift patient care from inpatient to outpatient setting
 - Reduces risk of healthcare-associated infections linked with prolonged hospital stays
- Current hospital compounding facilities limited; those available are aging & may be capacity-strained
 - Increased oversight of minimum standards for hospital cleanrooms
 - PIC/S guidelines
- Limited availability of trained staff in the hospitals

Medication Administration Process

Globally accepted directive that
the **right drug**

is given in the **right dose**

by the **right route**

by the **right person**

to the **right patient**

at the **right time.**

Lookalike drugs, soundalike
drug names

.1mg, 10IU

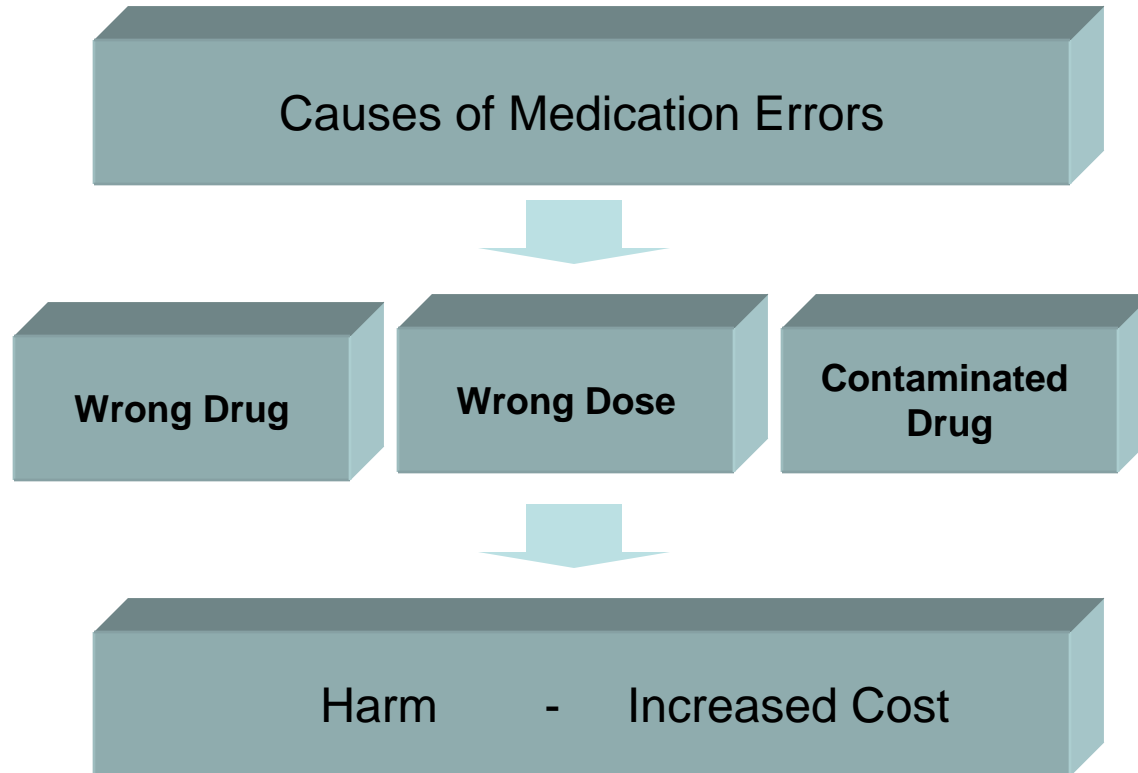
IV vs. IT, EN vs. PN

Trained nurse ... but
distracted by relatives?

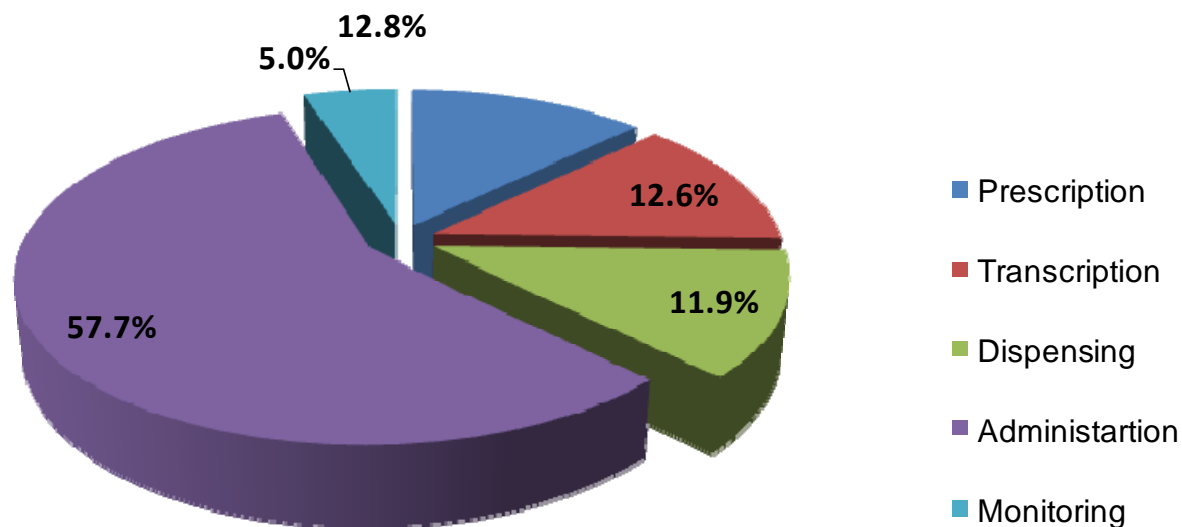
Mr Tan, Encik Ahmad

Patient not around, drug not
available, etc. etc.

The Medication Error Cascade

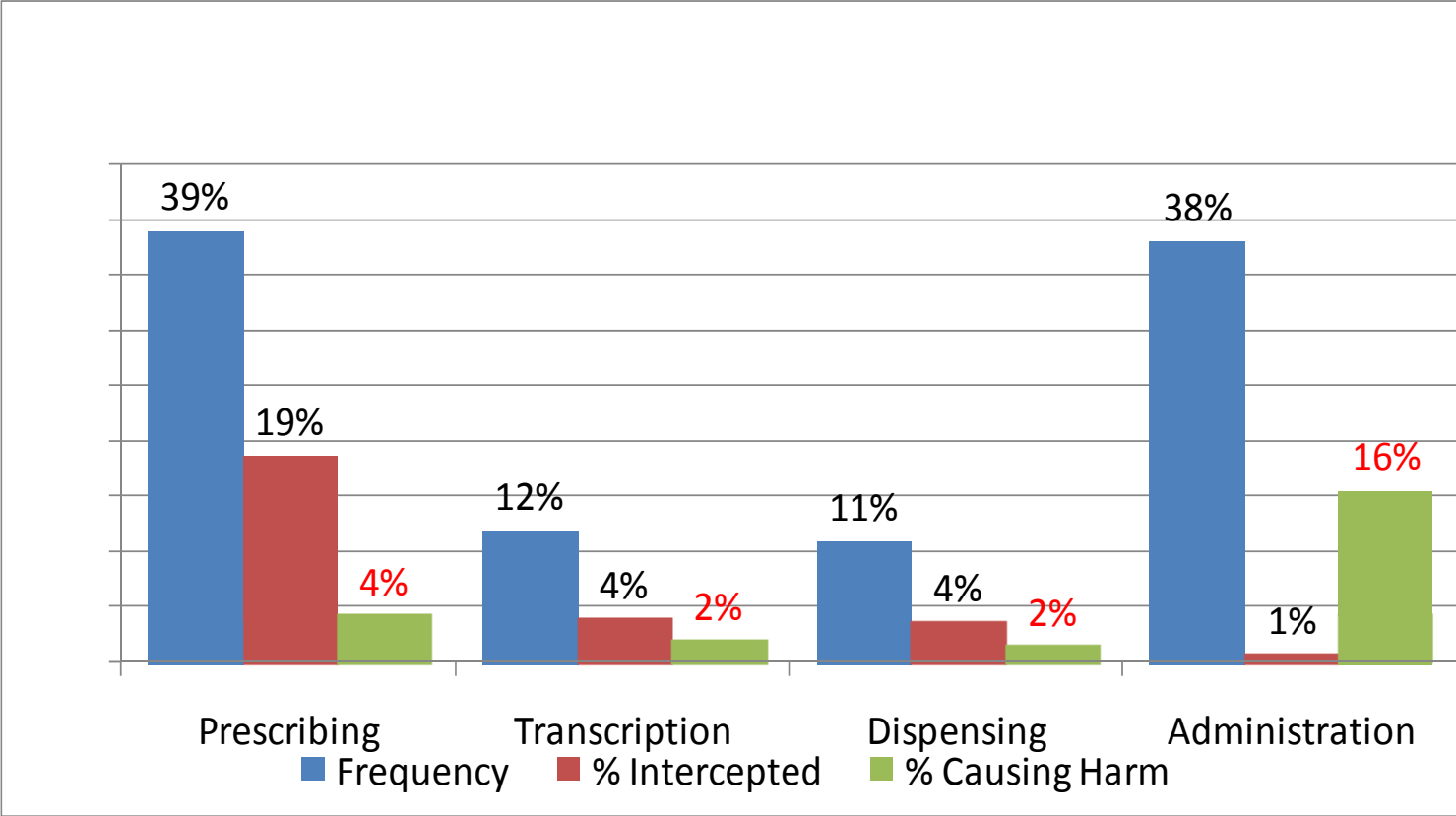


Type of Medication Errors



Over 70% of in-hospital medication errors occur during prescribing and administration stages.

Medication Error Process Flow



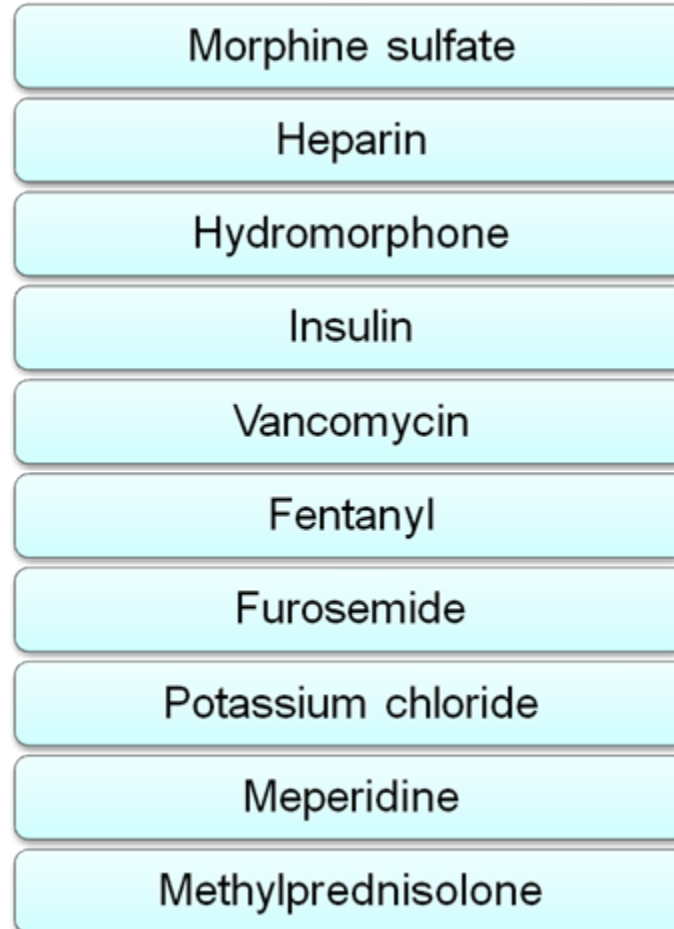
Why is Aseptic Compounding Important?

- Very few IV drugs are sold in a “ready to use” form.
- Most IV drugs must be manipulated into a delivery system, such as a syringe or mini-bag, prior to administration
- Some drugs not safe to prepare at ward level (TPN, Cytotoxics, Antivirals, Epidurals & Antibiotics)
- After preparation, sterilisation not possible
- When you make IV preparations, errors can occur

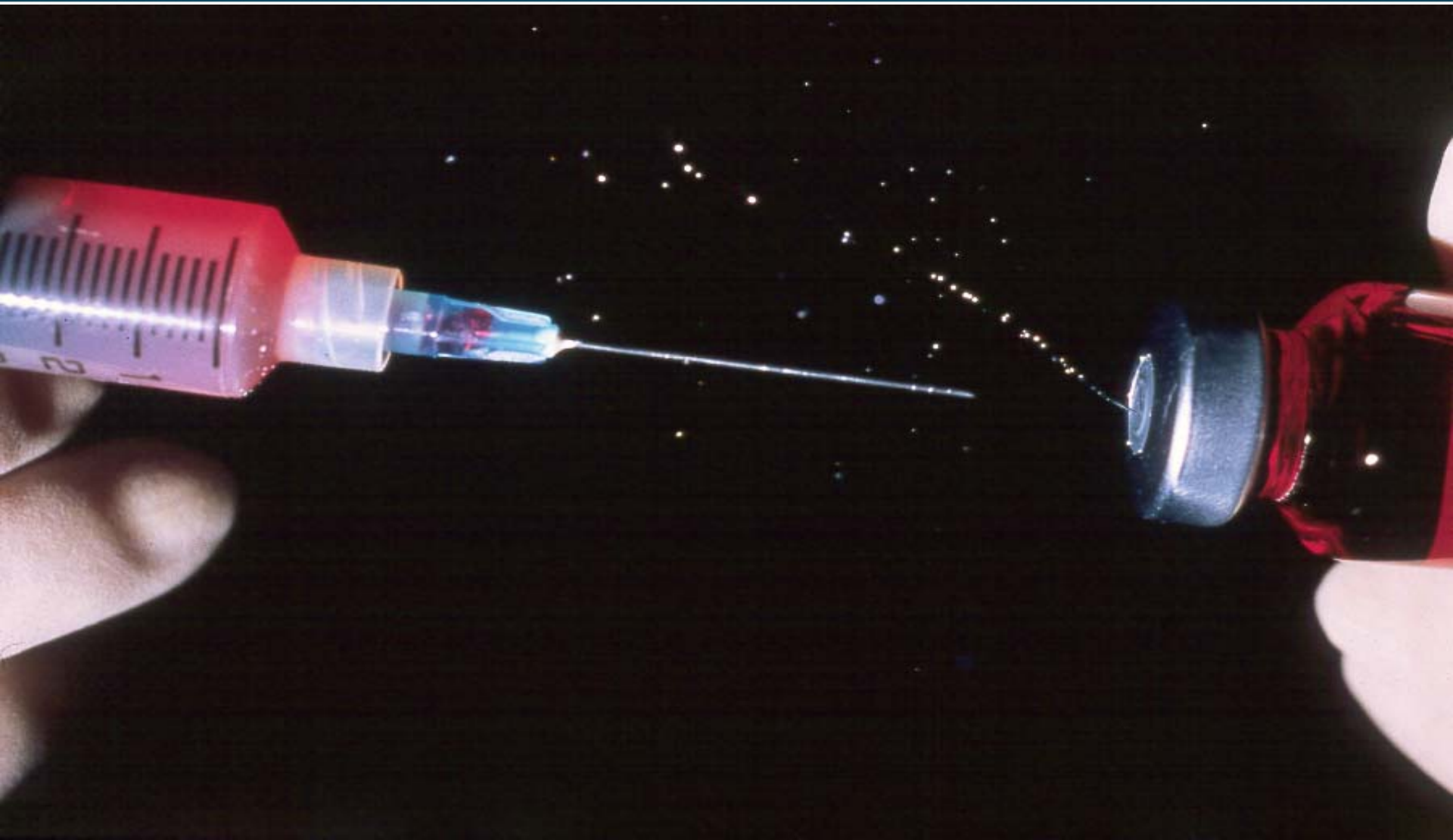


Drugs Responsible for Harmful Errors

Top 10 Medications



Drug Aerosolization



China Occupational Exposure Survey Report

No. of Hospitals: 167

- Only 4.8% of the Hospitals centralize the compounding of cytotoxic drugs
- 38% of the hospitals have equipment for preventing occupational exposure
- Only 13% of the hospitals which have the prevention equipment use the right equipment
- 81% of nurses wear gloves when doing cytotoxic drug admixture, but only 9.6% wear the RIGHT type of gloves

Intravenous fluids with added drugs : Vehicles for infection?

Type of solution	% contaminated
no added drugs	3.9
added drugs	6.7

1003 bottles sampled*

*85% were Dextrose 5% in Water

Woodside W, Woodside ME, D'Arcy PF, Patel R
Univ. Belfast, NI
Pharm J. 1975;215:606

Contamination Issues

- A higher rate of contamination was observed for admixtures prepared on the nursing unit¹
- Although the difference did not reach significance, touch contamination was thought to be an important factor

<u>Contamination rate by site</u>		
Laminar airflow hood	Nursing unit	<i>P</i>
5.5%	10.9%	<i>P</i> =0.17

- Parenteral products are frequently activated on the nursing unit² :
 - Nearly 2/3 (64%) of US hospital pharmacy administrators indicated that in their institutions, point-of-care parenteral products were activated on the nursing unit at least part of the time

1. Poretz DM et al. *Am J Hosp Pharm.* 1974;31:726-732.
2. Fanikos J et al. *Am J Health-Syst Pharm.* 2007;64:2037-2043.

Contamination Issues

- Survey of 6 hospitals in Mexico lacking an infection control committee; IV infusions were routinely prepared by nurses on the ward
- 751 infusions were cultured

16 (2.13%) infusions were contaminated
(range 0% to 5.56%)

- The most common organisms isolated:
 - *Klebsiella pneumoniae* followed by *Enterobacter cloacae*
- The authors expressed their concern that if the hospitals surveyed were representative of others in developing countries, that an endemic level of parenteral infusion contamination could be present in many hospitals throughout the world

Nursing Challenges

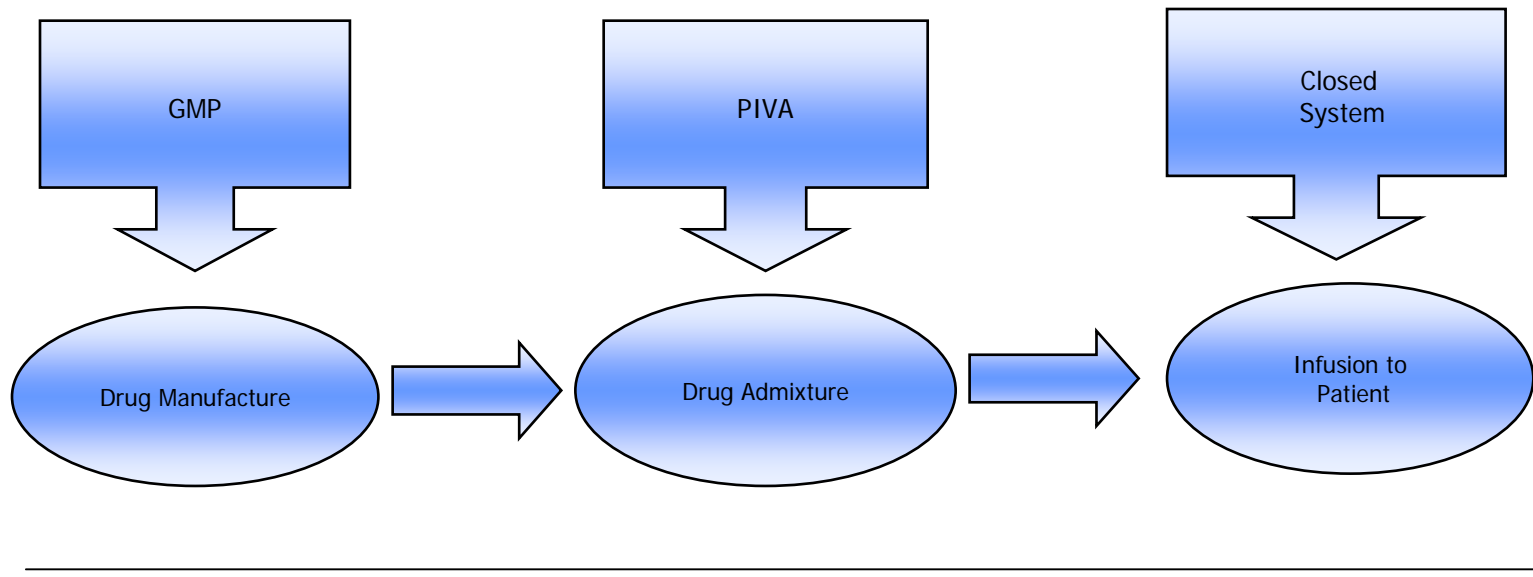
- **Insufficient time to devote to medications**
 - Documentation entries & patient visits
 - Numerous required tasks that occupy a significant component of the available time
 - Time spent tracking issues with pharmacy





What is PIVA?

PIVA = Pharmacy IntraVenous Admixture



Extension of GMP

Improved Workflow Efficiencies ...

Ready-to-mix



MiniBag® Plus



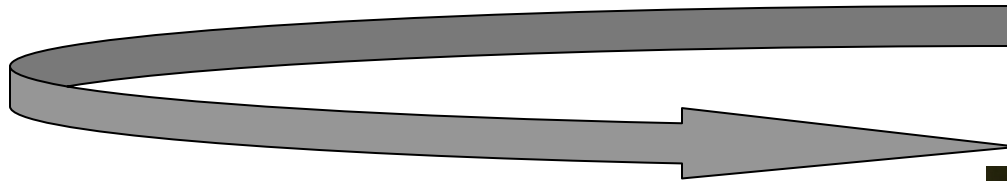
Bioset®



Recon Transfer Device



MiniBag®



Ready-to-use



Ready to Mix kits



Premixes



PIVA

Increased Patient Safety ...

Ready-to-mix



MiniBag® Plus



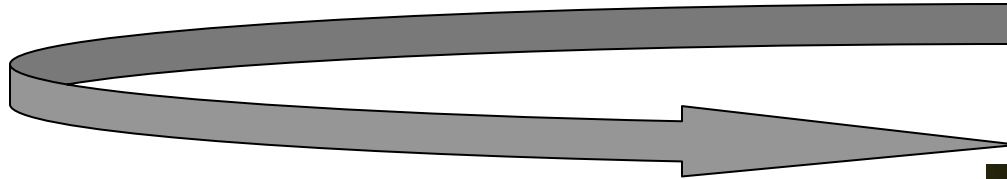
Bioset®



Recon Transfer Device



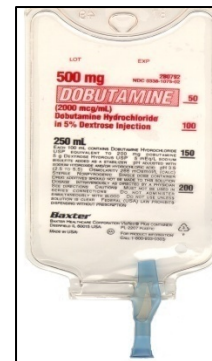
MiniBag®



Ready-to-use



Ready to Mix kits



Premixes



PIVA

PIVA Benefits to Hospitals

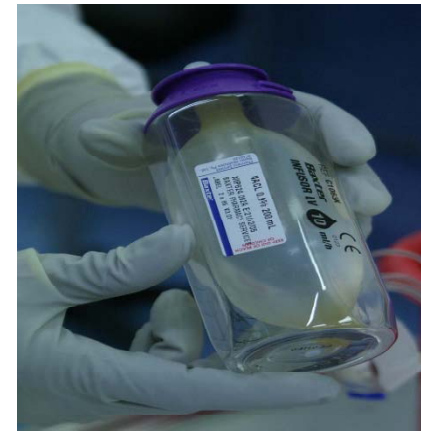
- **Safety**
 - Risk managed by appropriately trained, dedicated staff
 - Fully validated processes with recall procedures
 - Reduction in OH&S exposure
 - Infection rates decrease
 - Medication errors decrease with ready-to-administer properly labelled IVs
- **Cost Effective**
 - Mg pricing; vial sharing
 - Decrease in drug wastage
 - Extended expiry
 - Reduced inventory costs
- **Manpower efficient**
 - Nursing staff for clinical nursing care vs. Drug reconstitution
- **Revenue Stream**
 - Point of differentiation in an increasingly crowded healthcare market



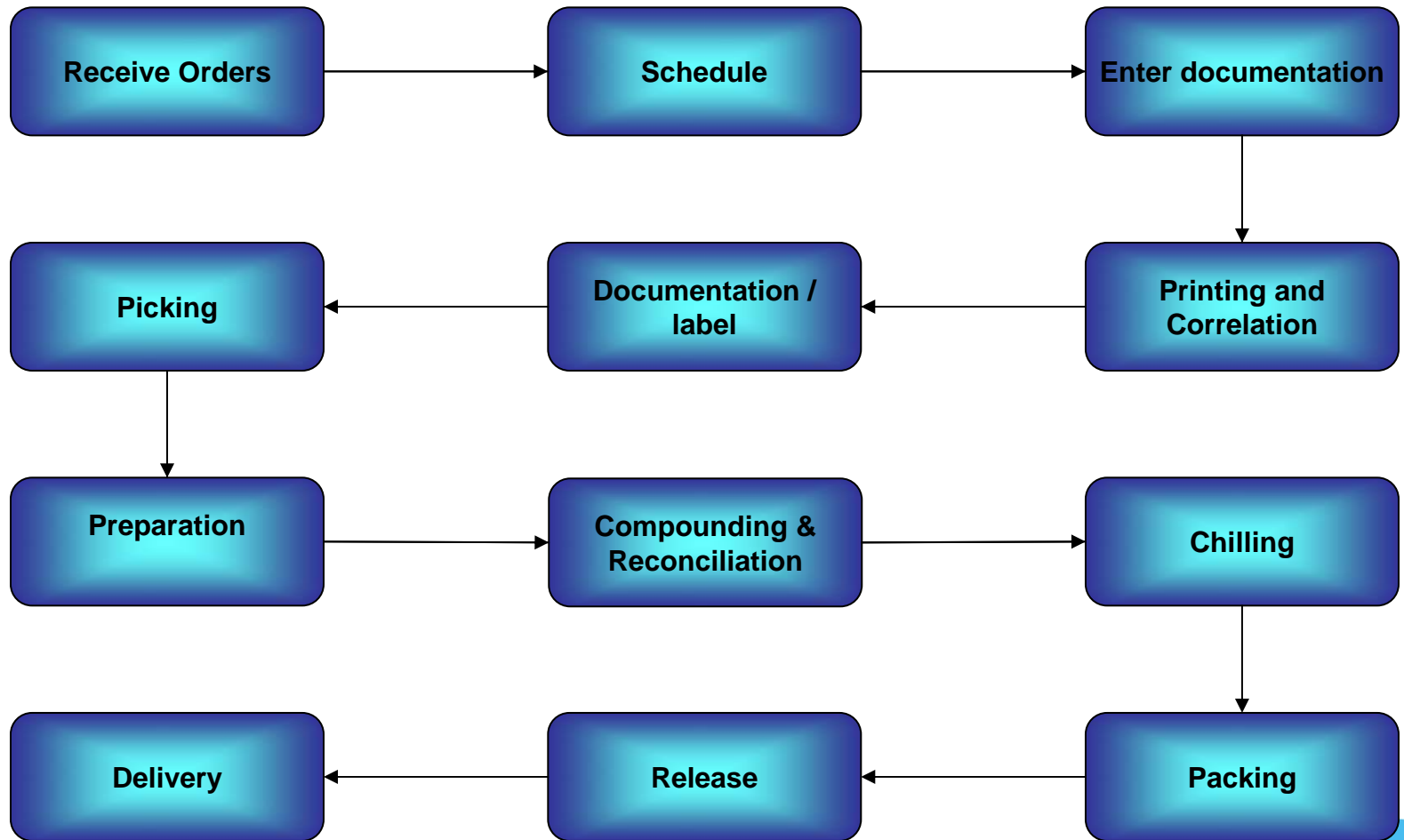
**COMPETITIVE EDGE IN JCI
COMPLIANCE & MARKET
DIFFERENTIATION**

Applicable Products & Services

- **Patient specific or batched Parenteral Nutrition solutions**
- **Patient specific or batch prepared IV additives**
 - Chemotherapy
 - Antibiotic
 - Analgesic agents
- **Variety of delivery systems**
 - Syringes, minibags, large volume infusions
 - Elastomeric infusion systems
 - CADD cassettes
 - Dual or 3 Chambered bags (PN)
- **Customer base**
 - Inpatients
 - Outpatients



Process Overview



Strategic Success Factors

- **Patient Safety Culture**

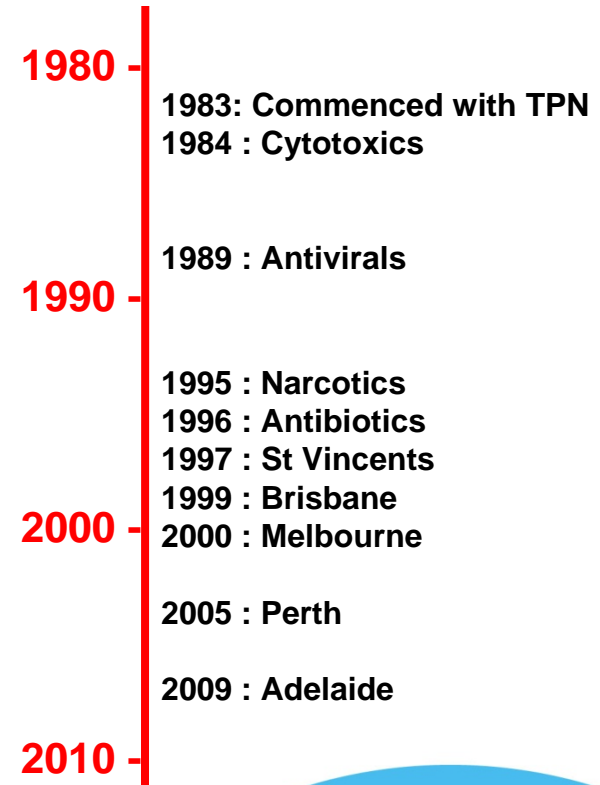
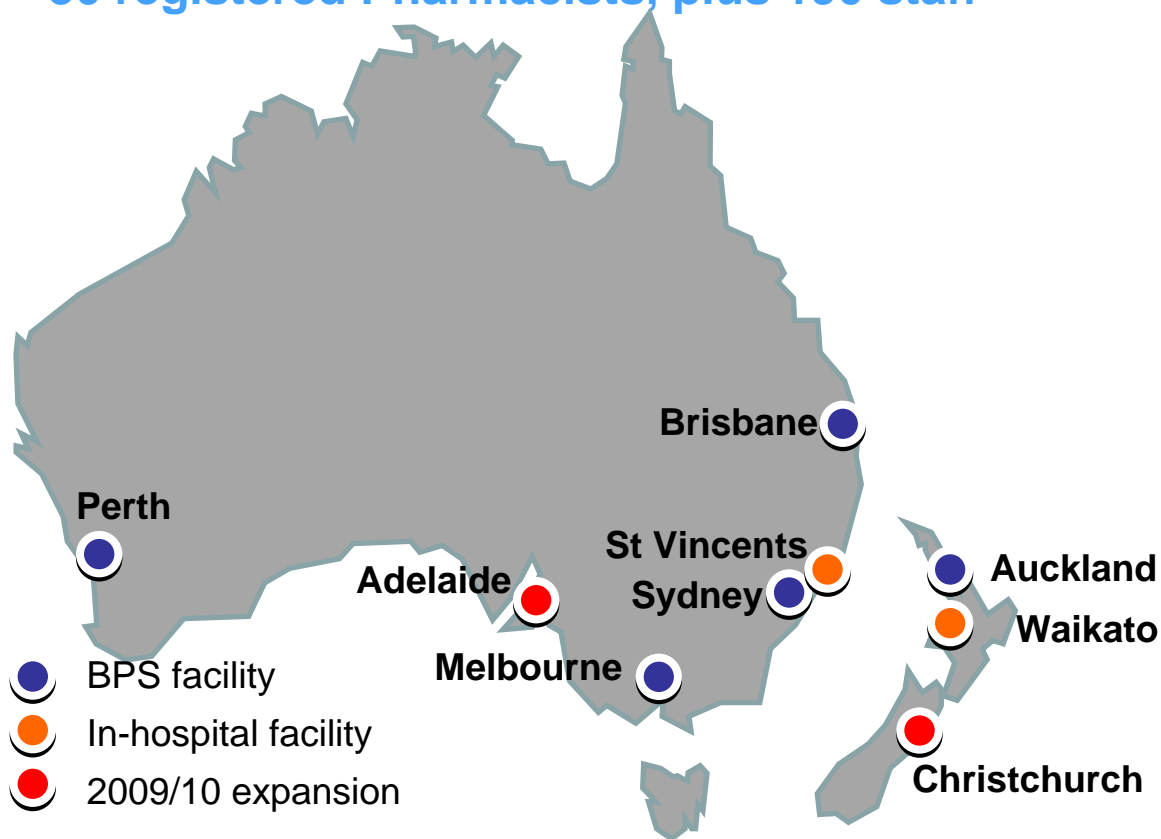
- Nurses role in patient care vs. Drug reconstitution
- Evaluating the entire drug administration process holistically
- All healthcare staff – nurses, pharmacists, doctors – are involved

- **Supportive Environment**

- Recognition of the unique nature of aseptic compounding
- Pharmacy Acts

ANZ BPS Network

- Network of facilities across ANZ servicing more than 300 public and 50 private hospitals, as well as pharmacies & clinics
- 30 registered Pharmacists, plus 190 staff



PIVA in Singapore

Ans



PIVA in China



Shandong Provincial Hospital



Beijing Caoyang Hospital

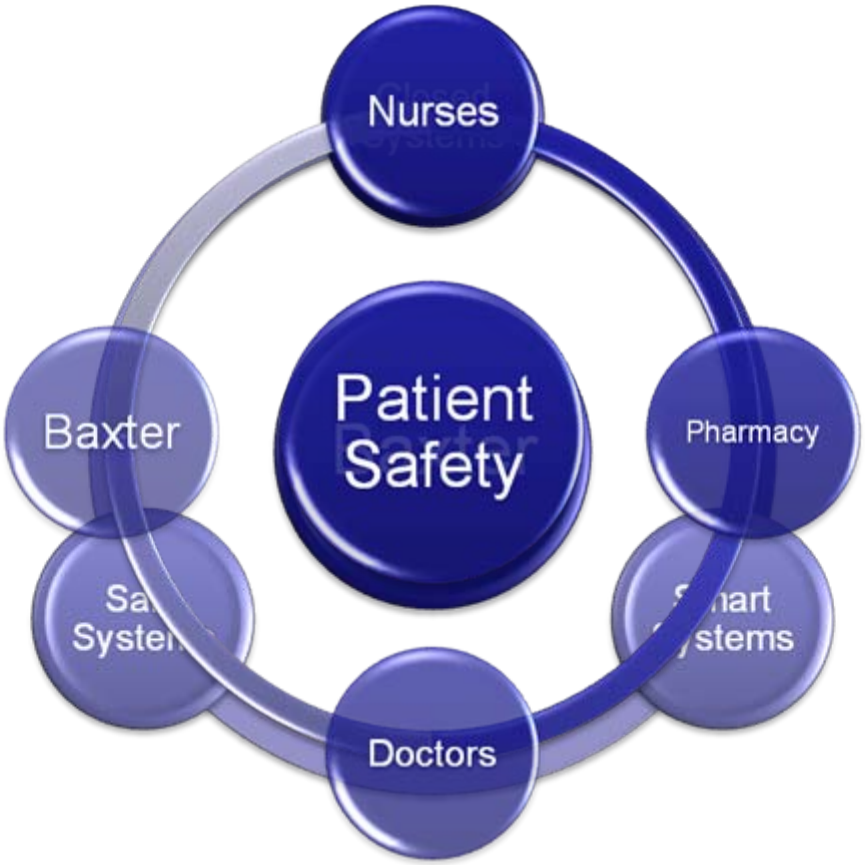


Jiangsu Provincial hospital



Shanghai Zhongshan Hospital

Baxter & You



Baxter
Pharmacy
Services

Tailored Partnerships
Total Solutions

