



MEINNTECH
MEDICAL INNOVATION TECHNOLOGY

Overview of ACPI Anyfusion Pro & ACPI Anyfusion Kit

(Automated Anti Cancer Drug Preparation & Infusion Integrated System)

May 2020

What is ACPI ?

"Automated Anti Cancer Drug Preparation & Infusion Integrated System"

Why ACPI ?

"Need for Better Safety, Efficiency and Accuracy"

The treatment of chemotherapy is one of the most challenging processes within the infusion therapy. Starting with the preparation of the drug by means of transportation, administration to the patient and disposal after the treatment; the healthcare workers, physicians, pharmacists and also the patients are permanently at the risk of endanger their health.

International guidelines dictates the special handling of cytostatic drugs to reduce risks during the process.

"Specialized Infusion Therapy with Anti-Cancer Drugs,
Maximize efficiency and safety with **ACPI Anyfusion Pro** and **ACPI Anyfusion Kit**"



"Non-Stop Chemotherapy with
ACPI Anyfusion Pro & ACPI Anyfusion Kit"

The Core Technology of Anyfusion

Direct Motion



Rotary Motion



[Anyfusion Cylinder Cartridge]

New Innovative Cylinder Pump System



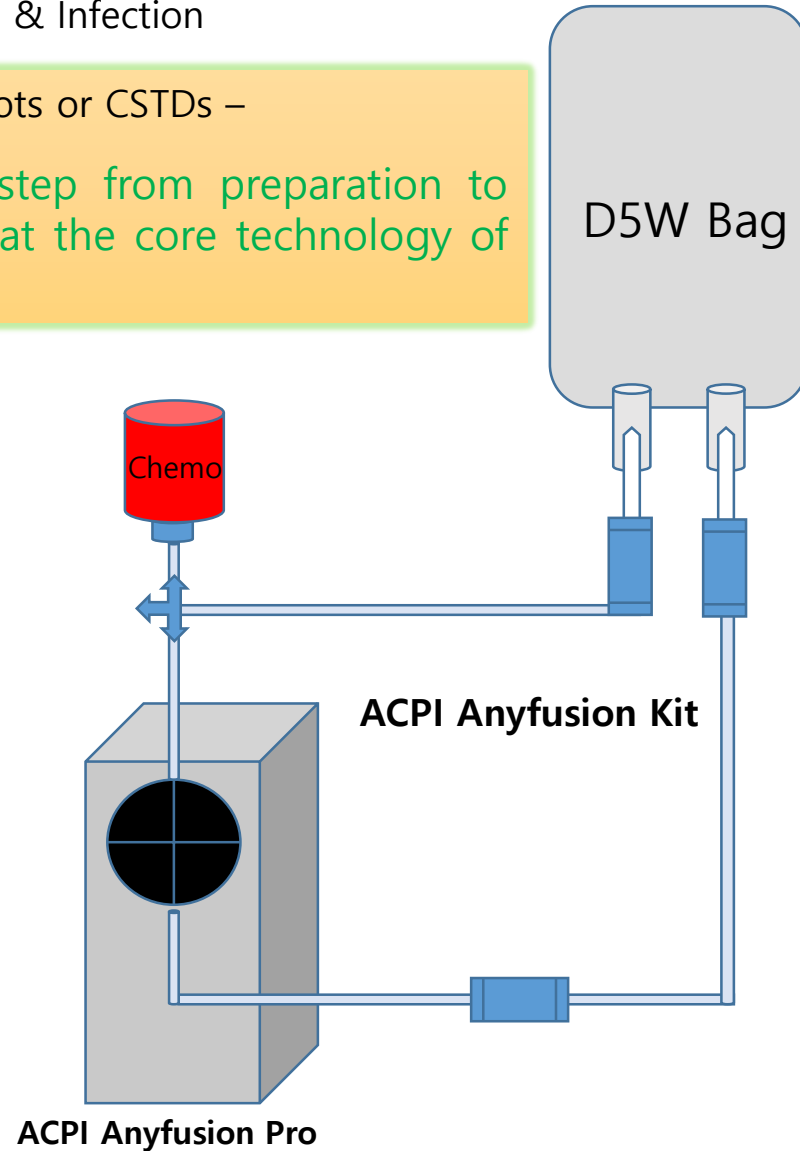
***“Rotary Motion Mechanism satisfies both Syringe and Infusion System
And prevents Free Flow, Inadvertent & Accident Bolus, Air Bubble”***

The Concept of **ACPI Anyfusion Pro** & **ACPI Anyfusion Kit**

- Automated Anti Cancer Drug Preparation & Infusion Integrated System
- Using Cylinder Cartridge Mechanism and Innovation in Design and Technology
- World 1st, Non-Stop From Preparation to Infusion, "All-In-One" Pump
- Prevention of Contamination & Infection

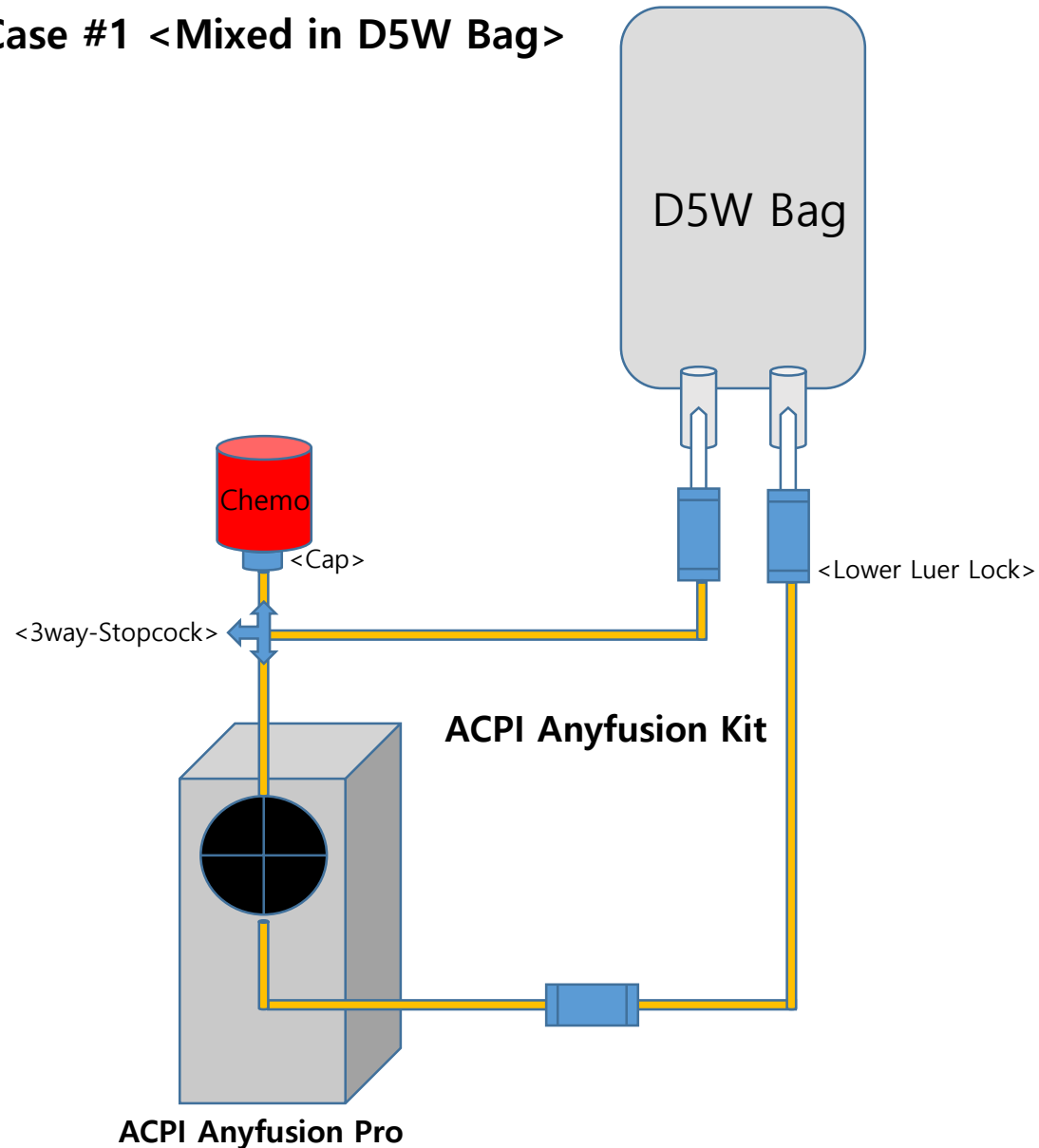
This system is not using the robots or CSTDs –

It is total solution of one-step from preparation to injection by using the kit that the core technology of Anyfusion is applied



The Concept of **ACPI Anyfusion Pro** & **ACPI Anyfusion Kit**

Case #1 <Mixed in D5W Bag>



1. Prescription

- D5W 80ml
- Chemo 10ml

2. Dispose 20ml of 100ml in D5W

- Remove Lower Luer Lock
- Set up 20ml in Anyfusion and Start it
- Connect Lower Luer Lock after D5W 20ml of disposal
- Audit : Mass measurement of Injection

3. Mix 10ml of Chemo

- Connect Cap to Chemo (bottle)
- Rotate 3 way-stopcock (Open the way)
- Set up 10ml in Anyfusion and Start it
- Audit : Mass measurement of Injection

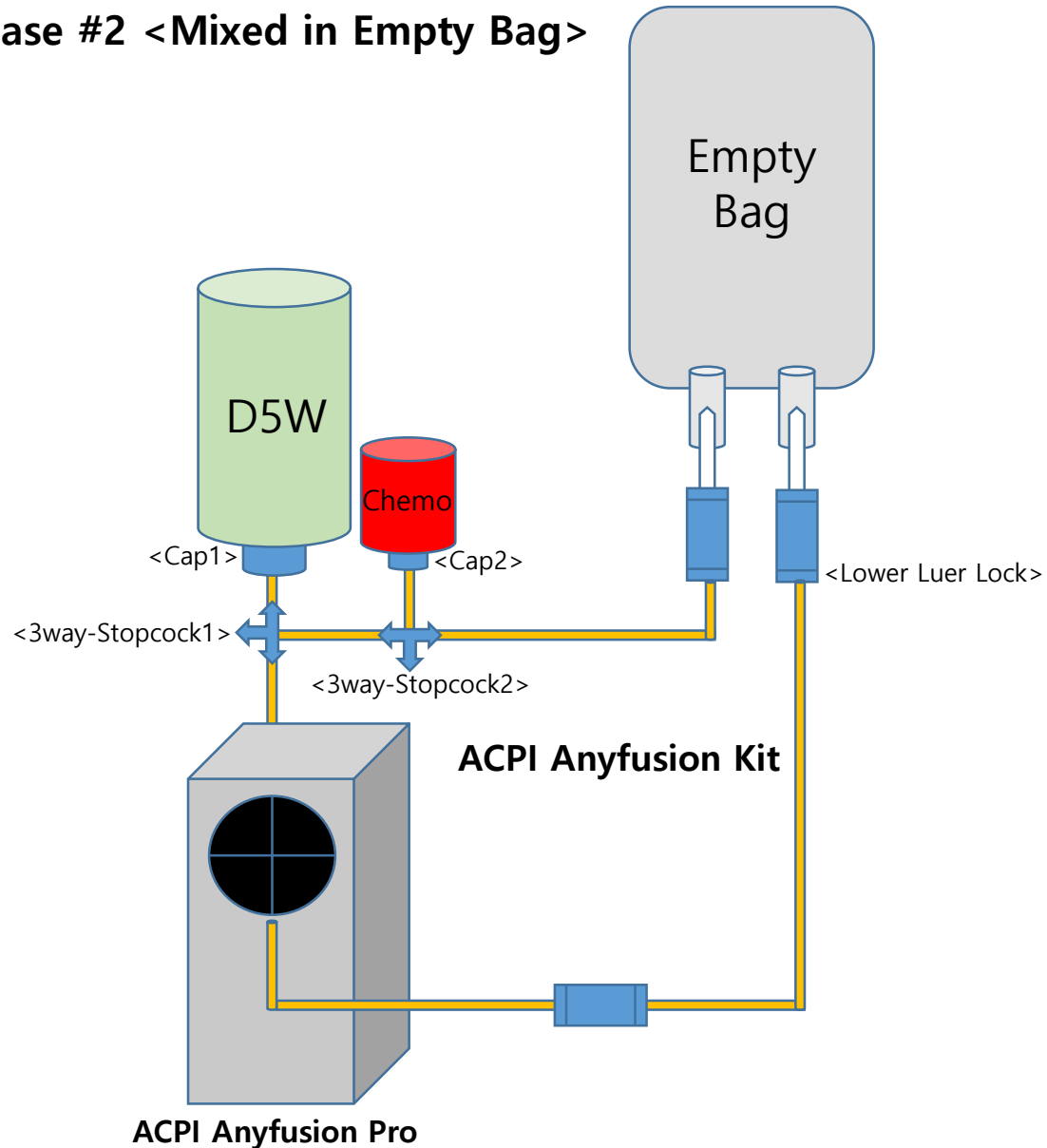
4. Complete Preparation in D5W Bag (mixed)

5. Move Anyfusion Kit to Ward and Injection to Patient

⇒ *No need to Disconnect from Preparation to Infusion (Non-Stop)*

The Concept of **ACPI Anyfusion Pro** & **ACPI Anyfusion Kit**

Case #2 <Mixed in Empty Bag>



1. Prescription

- D5W 80ml
- Chemo 10ml

2. Fill 80ml of D5W in the Empty Bag

- Connect Cap1 to D5W 100ml (Bag)
- Rotate 3 way-stopcock1 (Open the way)
- Set up 80 ml in Anyfusion and Start it
- Audit : Mass measurement of Injection

3. Mix 10ml of Chemo

- Connect Cap2 to Chemo (bottle)
- Rotate 3 way-stopcock (Open the way)
- Set up 10ml in Anyfusion and Start it
- Audit : Mass measurement of Injection

4. Complete Preparation in Empty Bag (mixed)

5. Move Anyfusion Kit to Ward and Injection to Patient

⇒ *No need to Disconnect from Preparation to Infusion (Non-Stop)*

The Type of Anti Cancer Drug Preparation

<CSTD, Closed-System drug Transfer Device>



1. Key Player :

BD, ICU Medical (USA)
B. Braun (Germany)
JMS Co., Ltd. (Japan)

2. Issue :

- ⇒ Human Error (Audit, Labelling, Wrong Medication(Patient) name)
- ⇒ Error of Wrong Dose
- ⇒ Damage of Device (Contamination)

VS

<Robot>



1. Key Player :

APOTECA Chemo (Loccioni, Italy)
Cytocare (HEALTH ROBOTICS, Italy)
Kiro Oncology (Kiro Robotics, Spain)

2. Issue :

- ⇒ Expensive (approx. \$ 1M)
- ⇒ Low Daily Coverage of Chemo Prescription : 24.9%
- ⇒ Limited Drug Preparation (approx. 30 drugs)

Problem Analysis of Anti Cancer Drugs Preparation

Table 1. Types and frequency of preparation errors

Error Types	Cases	% Example
Wrong Drug Dose	28	18 Gemcitabine 1900mg (47.5ml)= >2000ml (50ml)
Wrong IV Injection Dose	22	14 Dilution of Docetax to Dextrose 100ml => 200ml
Leakage & Damage in Preparation	20	13 Put needle into inlet of bag
Wrong Drug	17	11 Gemzar => Gemtan
Quality issue	14	9 Air bubble into Infusion Pump
Omission of Preparation	10	6 Omission of Preparation for Bleomycin test dose
Request error	8	5 Requet Cisplatin 142ml, but preparation of 100ml
Restructure error	7	5 Dissolve Pemetrexed 4ml instead of 4.2ml
Storage error	7	5 Vincristine not in the refrigerator
Preparation of canceled prescription	7	5 Start Preparation of canceled prescription
Wrong Patient	5	3 Faliure of checking the patients
Omission of Precaution after Preparation	4	3 Dispose Vedolizumab after preparation (needed to be store empty vial)
Wrong IV Injection	3	2 Dilution Carboplatin with Dextrose, not normal saline
Preparation time error	2	1 After a certain period of time, Vedolizumab must be prepared
Wrong Labelling	1	1 After 5-FU dilution, the expiration date was 43 hours, but indicated as 7 hours
Total	155	100

Reference : [J. Kor. Soc. Health-Syst. Pharm., Vol. 29, No. 1, 73 ~ 80 \(2012\)](#)

(Cf. This material has been translated into English.)

Problem Analysis of Anti Cancer Drugs Preparation

Table 2. Stage of preparation error occurrence

Occurrence Stage	Cases	%
Prescription	8	4
Audit of Prescription	18	9
Audit before Preparation	33	17
Before Preparation	8	4
Preparation	97	51
Audit after Preparation	17	9
Pharmacy management after Audit	10	5
Total	191	100

Table 4. Causes of preparation error : personal resource

Causes	Cases	%
Device operation error	23	16
Preparation Instruction error	23	16
Selection of Drugs & IV injection	18	13
Wrong Dose	12	9
Preparation Technical error	10	7
Checking Labelling error	10	7
Lack of pharmaceutical information	9	6
Prescription or Audit error	9	6
Personal mistake or error	8	6
Request error	7	5
Checking patient error	5	4
etc.	5	4
Communication error	2	1
Total	141	100

Table 3. Stage of preparation error detection

Detection Stage	Cases	%
Audit before Preparation	15	10
Before Preparation	8	5
Preparation	60	39
Audit after Preparation	27	17
Pharmacy management after Audit	18	12
Before Infusion	25	16
After Infusion	2	1
Total	155	100

Table 5. Causes of preparation error : drug-related resource, environmental resource

	Causes	Cases	%
Drug-related resource	Device error	17	26
	Unique preparation	10	15
	Nonrelevant indication, Several contents	9	14
Environmental resource	Lack of computed support	18	27
	Heavy workload	9	14
	Communication error	3	5
	total	66	100

Reference : [J. Kor. Soc. Health-Syst. Pharm., Vol. 29, No. 1, 73 ~ 80 \(2012\)](#)

(Cf. This material has been translated into English.)

“No More Risks of Anti-Cancer Drug Preparation & Infusion”

⇒ Chemical Contamination

⇒ Drug Incompatibility

⇒ Microbiological Contamination

⇒ Medication Error

⇒ Sharp Injuries



Vesicant extravasation due to doxorubicin administration

The Strength of ACPI Anyfusion Pro & ACPI Anyfusion Kit

- © Risk Reduction for Preparation and Infusion of Anti-Cancer Drugs with Anyfusion Pro
- © High Accuracy for Preparation and Infusion of Anti-Cancer Drugs Using Cylinder Cartridge Mechanism
- © High Efficiency with Reduced Labor Cost & Medical Disposal Cost – Cost Effective
- © One Stop, Non-Stop Anti-Cancer Drugs Therapy with Anyfusion Pro (Preparation & Infusion)
- © The First and Only System to Combine both Automated Compounding and IV Workflow Technologies





Thank you !