



Everyone talking - A life journey with your kidneys  
First series 3<sup>rd</sup> episode: 2 November 2021

# Kidney Failure and you At the crossroad for replacement therapy

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Moderators: Ms. Candy Chea, Dr. Samuel Fung



# Kidney disease → a different “Life”

Kidney disease cause health problems  
and may affect your life in many ways  
→ a challenging life journey in the future, not easy.

But kidney disease is not a terminal illness  
→ many treatment options (roads), can live well.

**Facing the kidney disease positively**  
**Live well with kidney disease**

# A “Life” journey with your Kidneys

<b>Know</b> your kidneys (function)	<b>Aware</b> who are at high risk of kidney disease	<b>Understand</b> kidney diseases	<b>Manage kidney failure</b>	<b>Plan for the future</b>
<b>Protect</b> your kidneys	<b>Aware</b> of the symptoms of kidney disease	<b>Manage</b> kidney diseases	<ul style="list-style-type: none"><li>- Accept the kidney failure</li><li>- Slow down the deterioration</li><li>- Manage symptoms</li><li>- Secondary Prevention</li><li>- Renal replacement therapy: Dialysis, transplantation<ul style="list-style-type: none"><li>&gt; Preparation</li><li>&gt; Start dialysis at appropriate time</li><li>&gt; Care for oneself</li></ul></li><li>- Rehabilitation</li></ul>	<ul style="list-style-type: none"><li>- Medical care</li><li>- Family</li><li>- Work</li><li>- Life style</li><li>- Life impact</li><li>- Financial matter</li><li>- End of life care</li></ul>
	<b>Know</b> how to get tested for kidney disease to make a diagnosis	<ul style="list-style-type: none"><li>- treatment</li><li>- prevent / slow down the deterioration of Kidney failure</li><li>- prevent complications</li></ul>		



# Understand and accept the illness

1.

Many kidney diseases are chronic illness, not going to disappear

2.

If managed well, the kidney disease can be controlled.  
(stabilize or slow down the deuteriation)

3.

Some kidney diseases can progress to end-stage renal failure, but good treatment and care can slow the progression.

# How to monitor the kidney function

# When to Start Dialysis?

## Possible consequences of delaying dialysis?

- Fluid overload (difficulty breathing and swelling)
  - Electrolyte imbalance (high blood potassium can lead to heart problems including death)
  - Heart complication (e.g. inflammation of the pericardium)
  - Uraemia (stupor, coma and convulsion)
- without intervention, uraemia will progress and may cause death

Best to plan ahead and be prepared in advance

# Predicting Kidney Failure Progression in Chronic Kidney Disease

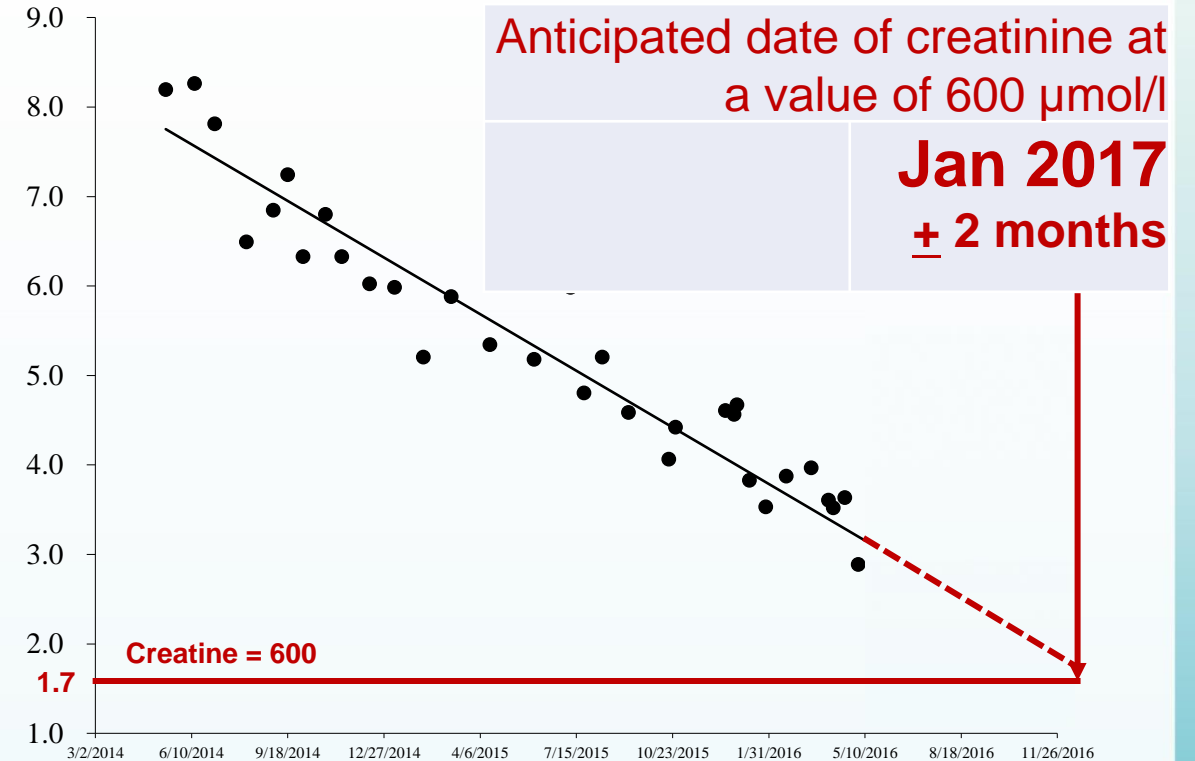


# Predicting Kidney Failure Progression & When to have Kidney Replacement Therapy

## Serum creatinine



## 1000/serum creatinine

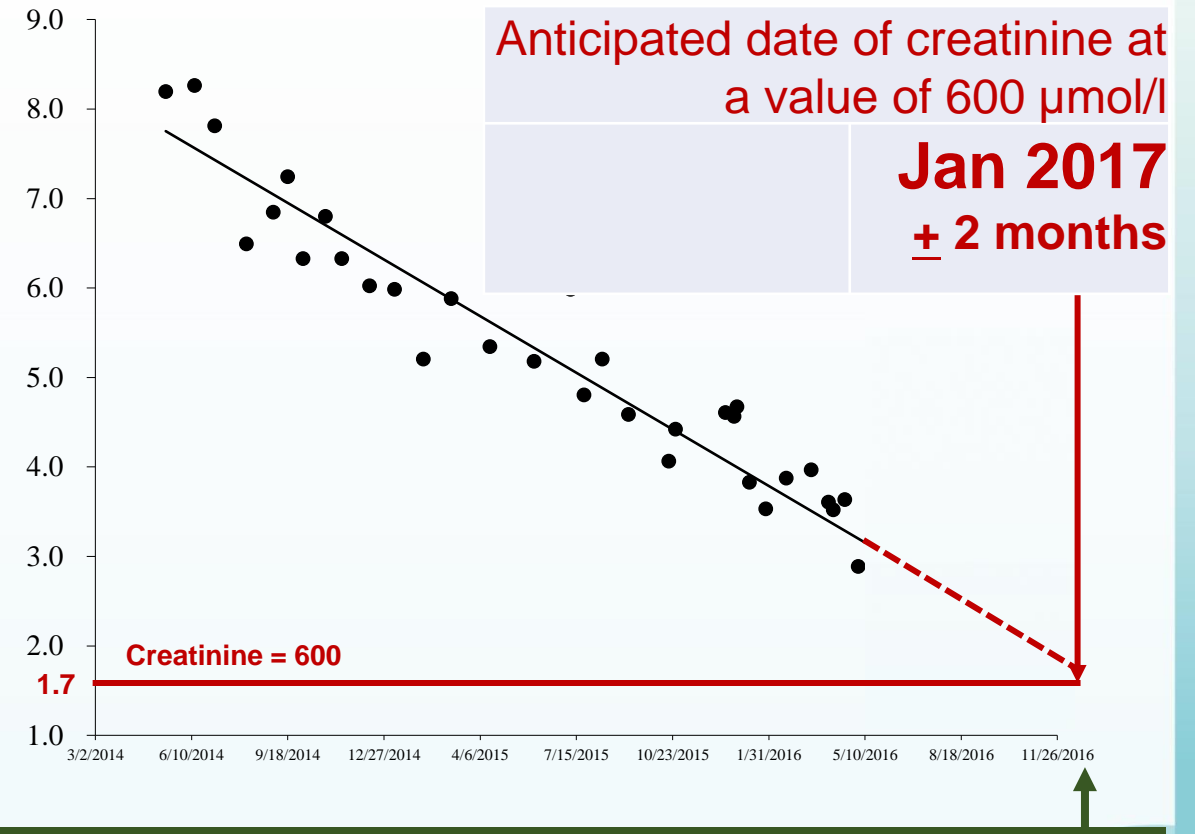


# Predicting Kidney Failure Progression & When to have Kidney Replacement Therapy

Serum creatinine



1000/serum creatinine



Date of kidney transplant 29 Nov 2016

<p><b>Stage 3</b> <b><u>Moderate</u></b> <b>Chronic Kidney Disease</b></p> <p>GFR:<b>30-59</b> ml/min/1.73m<sup>2</sup></p>	<p><b>Stage 4</b> <b><u>Severe</u></b> <b>Chronic Kidney Disease</b></p> <p>GFR:<b>15-29</b> ml/min/1.73m<sup>2</sup></p>	<p><b>Stage 5</b> <b><u>End-stage</u></b> <b>Chronic Kidney Disease</b></p> <p>GFR: <b>&lt; 15</b> ml/min/1.73m<sup>2</sup></p>
<p>Kidney Replacement Therapy (dialysis, kidney transplant)</p> <p><b>Planning</b></p>	<p>Kidney Replacement Therapy (dialysis, kidney transplant)</p> <p><b>Preparation</b></p>	<p>Kidney Replacement Therapy (dialysis, kidney transplant)</p> <p><b>Start</b></p>
<p>When to start? What are the options? What is your preference?</p>	<p><b>Haemodialysis</b> – creation of AV access <b>Peritoneal dialysis</b> – implantation of PD catheter <b>Kidney transplant</b> - feasibility of living donor</p>	<p>Training</p>

# **Patients Receiving Renal Replacement Therapy in Hong Kong**

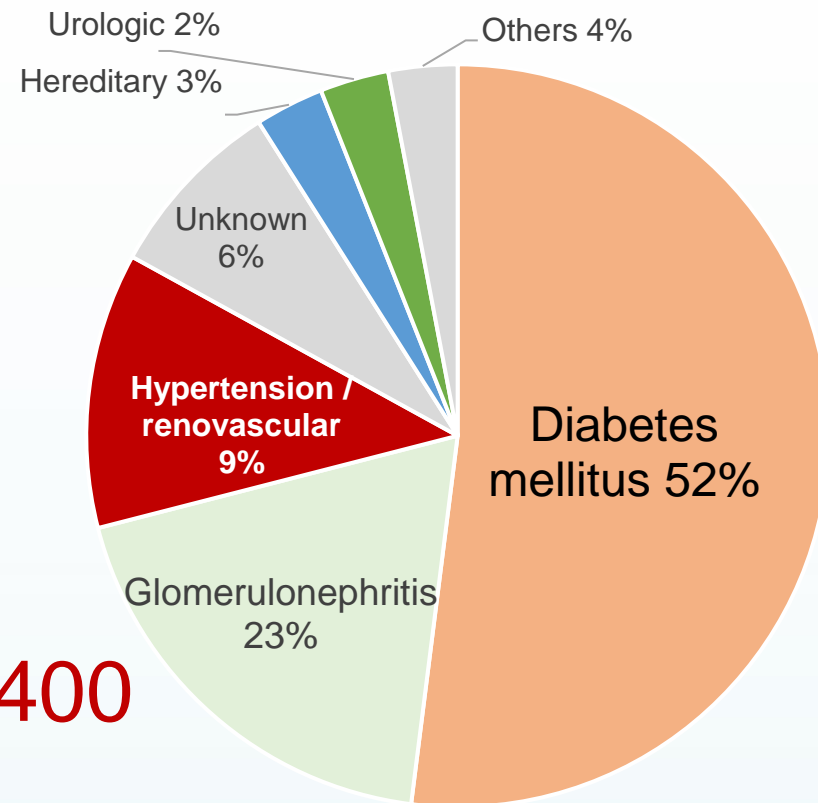
# Patients Receiving Renal Replacement Therapy in Hong Kong

## New patients

In 2020, there were 1,293 new patients accepted into the RRT programs\*

Average age 62

It was estimated that there were ~1,400 new RRT patients in Hong Kong



**Incident rate 173 patients per million population**

\*Hong Kong Renal Registry, Hospital Authority, as of 31/12/2020 (accounts for 90-95% of all patients receiving renal replacement therapy in Hong Kong)



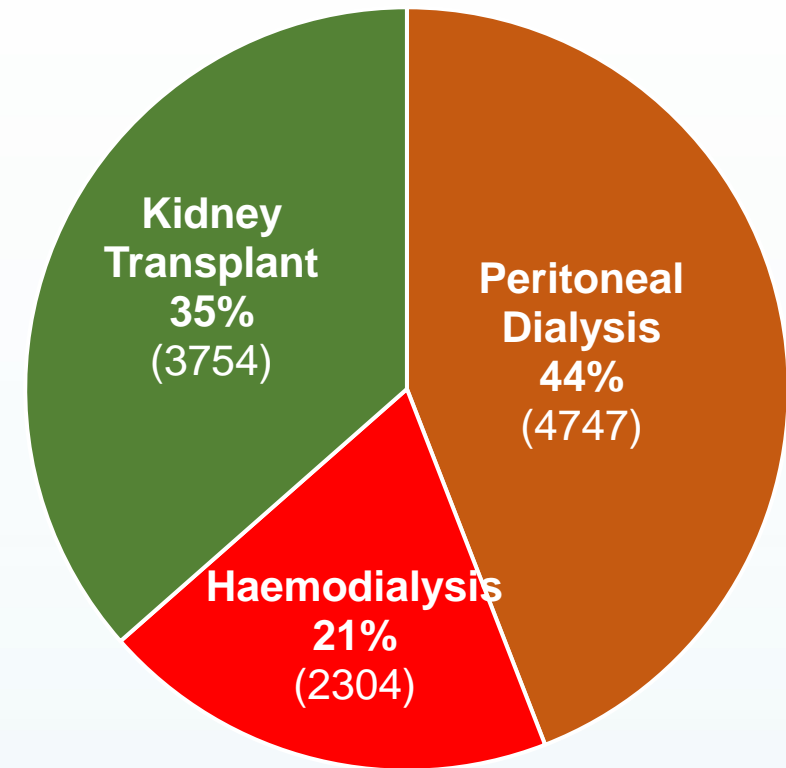
# Patients Receiving Renal Replacement Therapy in Hong Kong

## Total # patients

In 2020, there were 10,805 RRT patients under Hospital Authority\*

Average age 60

It was estimated that there were  
~12,000 RRT patients in Hong Kong



**Prevalent rate 1,446 patients per million population**

\*Hong Kong Renal Registry, Hospital Authority, as of 31/12/2020 (accounts for 90-95% of all patients receiving renal replacement therapies in Hong Kong)

# **Renal Replacement Therapy**

**Peritoneal Dialysis**

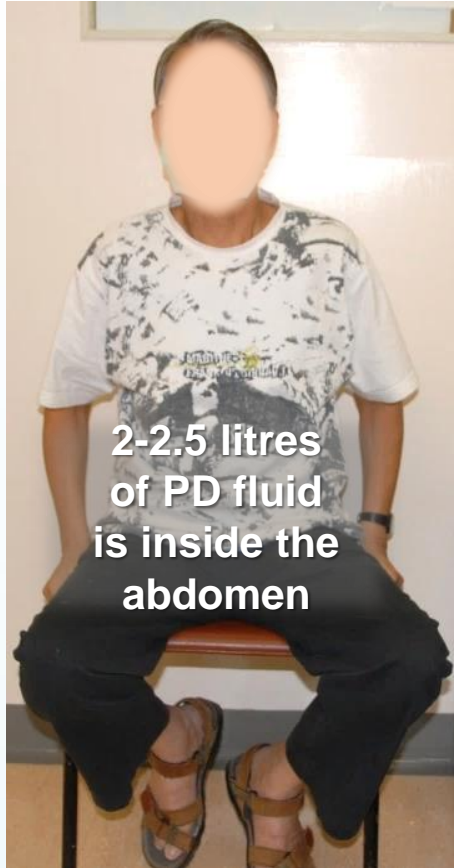
**Haemodialysis**

**Kidney Transplant**

# Peritoneal Dialysis (PD)

# PD – Continuous Ambulatory Peritoneal Dialysis (CAPD)

## Manual exchange





# CAPD Manual exchange



Each exchange lasts for 30-60 minutes

7 am

2 pm

Assuming 3 exchanges a day

10 pm

## 3-4 exchanges a day



# PD – Automated Peritoneal Dialysis (APD)

Exchange by machine



Operate by patient (or their Caregiver), receive the treatment at night while sleeping

Patient (or their caregiver) can return to work in daytime and enhance rehabilitation



10 pm

7 am

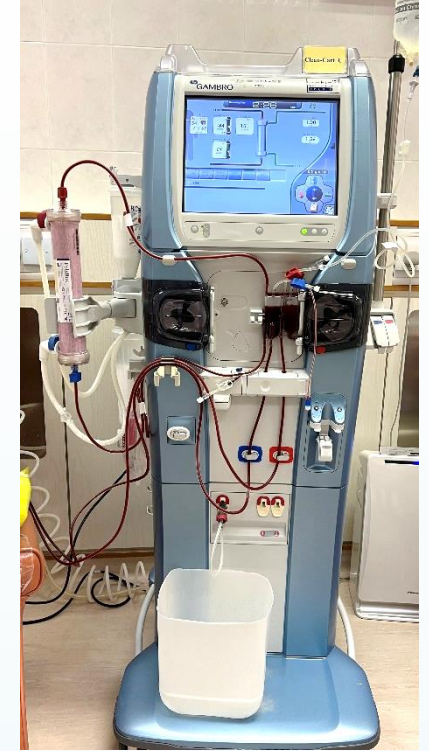
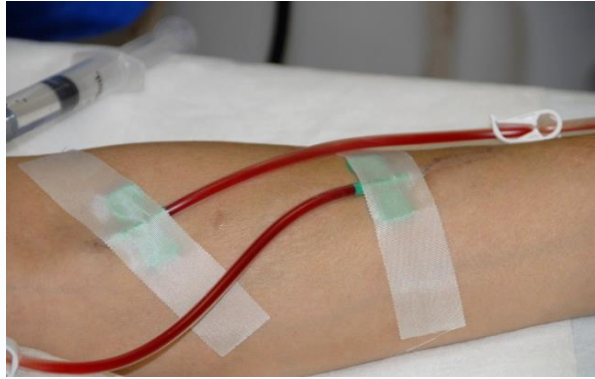
# APD Exchange by machine



# Haemodialysis (HD)



# In-centre Haemodialysis



Usually carry out 2-3 days a week  
with each session lasting for 4-5 hours

# Home Haemodialysis



Carry out by patient at home ( $\pm$  assisted by caregiver), usually 3-4 days a week for 6-9 hours overnight.



# **Kidney Replacement Therapy**

**Peritoneal Dialysis, Haemodialysis, Kidney Transplant**

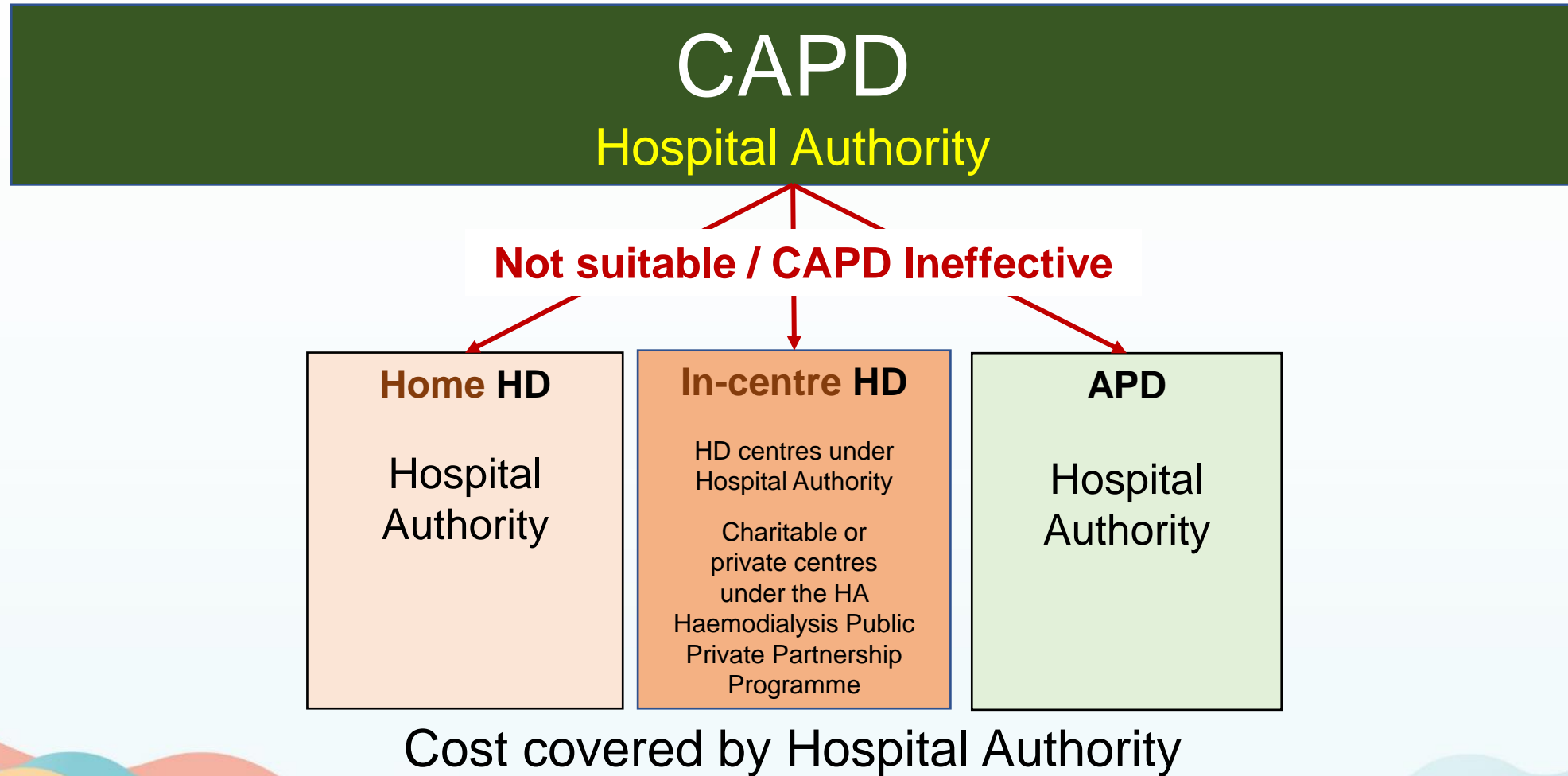
**How to make the  
right choice?**

# 1. Perspective of care provider

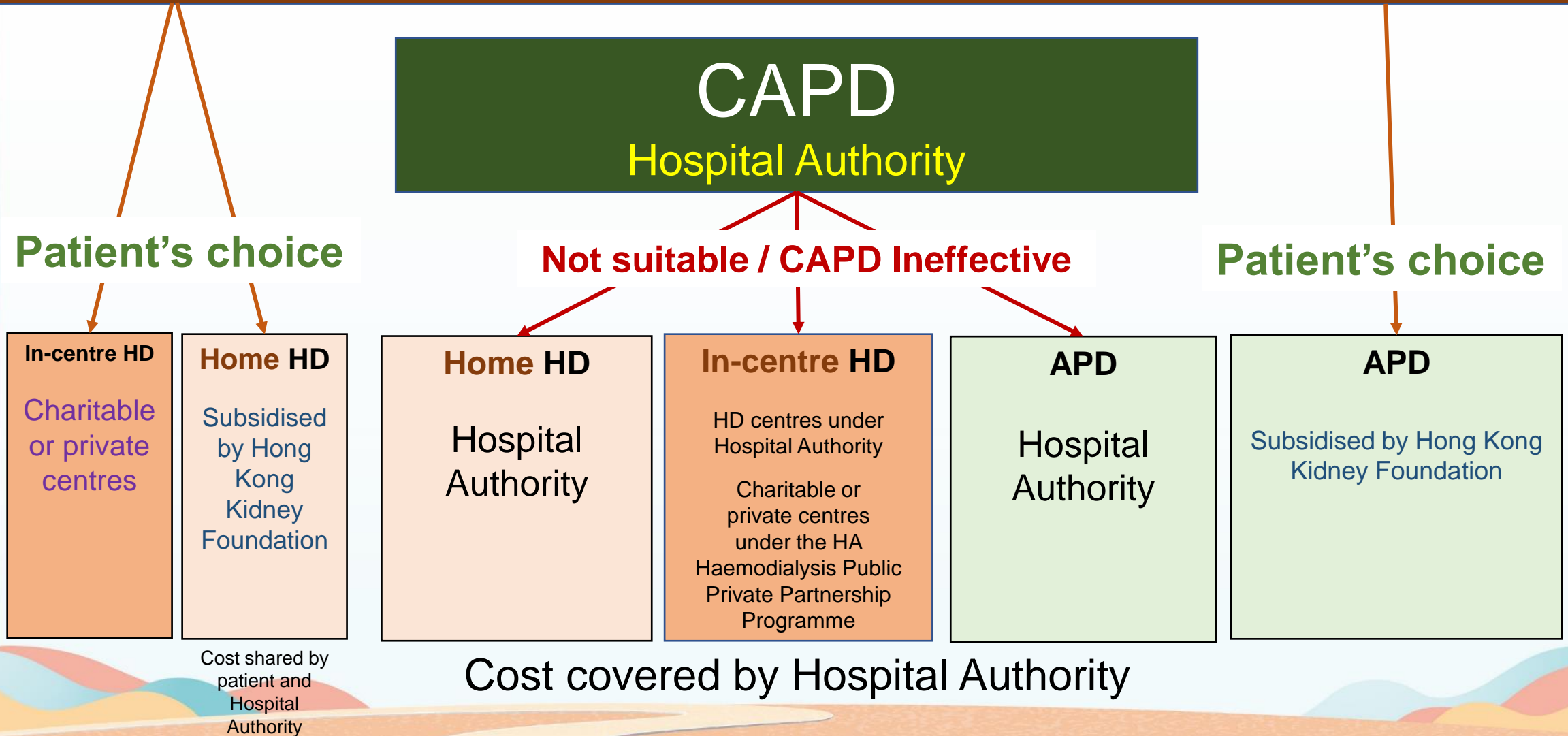
**Using treatment from**  
Government-funded (Hospital Authority),  
Private sector  
Charitable organisations

**A patient's choice**

# Kidney Replacement Therapy - Dialysis



# Kidney Replacement Therapy - Dialysis



## **2. Comparing different types of Kidney Replacement Therapy**



# CAPD

## Manual exchange

# CAPD

- Provide by Hospital Authority for patients who benefit from kidney replacement therapy.
- **Hospital Authority CAPD Priority Policy**  
Hospital Authority will provide CAPD unless contraindicated.
- Perform by patients or their caregivers at home, usually 3-4 exchanges a day and each exchange lasts for about 30-60 minutes.

# CAPD

## Advantages

- Perform at home by patient, no machine required
  - Continuous therapy
  - Better preserve residual kidney function
- Can allow for fewer dietary restrictions
  - Allow for travel
- Last for 4-5 years for most of the patients, some to 10 years or longer
  - Provide by Hospital Authority

## Disadvantages

- Must schedule dialysis into your daily routine
- May gain fluid if poor PD drainage
- Run risk of peritonitis (on average one episode per 3.2 patient-year)
  - Need ample storage space in your home for supplies

An economic burden

# APD

## Exchange by machine

# APD

- (1) Provide by Hospital Authority to suitable patients with medical needs (~ 220 quota).
- (2) Patient's choice: Have to fulfil certain criteria, e.g.
  - Patient's (or the caregiver) ability to operate the APD machine
  - Able to afford part of the treatment cost
  - Can join the Hong Kong Kidney Foundation

***Free-Loan APD Program or Co-Fund Co-Use APD Program***



# APD

## Hong Kong Kidney Foundation ***Free-Loan APD Program***

HKKF will loan an APD machine to patient free of charge if the patient meets the criteria based on financial assessment.

Since 1997, HKKF has procured 889 APD machine and supported 1,970 patients with free loaning of an APD machine, on average for 3-4 years, some to 10 years.

**HKKF currently has 665 APD machines  
for free loaning to patients.**

# APD

## Hong Kong Kidney Foundation *Co-Fund Co-Use APD Program*

The program is for patient opting for APD treatment but does not meet the criteria for free loaning of an APD machine from HKKF.

Patient contributes \$2333\* a month to the Fund for a maximum of 36 months.  
Patient does not need to contribute afterwards and  
can continue to use the machine till he does not need to be on the treatment.

The machine is owned by HKKF for patient use on a rotation basis. It is a self-sustaining program and provide funding for HKKF to buy more machines for the program.

# APD in contrast to CAPD

## Advantages

- Perform treatment every night while patients are asleep
- Operate by patients or their caregivers
- Leave the daytime free and greater lifestyle flexibility
- lower intra-abdominal pressure during recumbency

## Disadvantages (if choose by patient for non-medical reasons)

- (1) Cost of an APD machine
  - Machine cost ~\$100,000-\$130,000
  - Equipment Rental ~\$2,500-\$3,210 a month
  - HKKF Free-Loan APD Program  
HKKF Co-Fund Co-Use APD Program  
(\$2,333 a month, maximum 36 months, free afterwards)
- (2) Economic burden

The above expenses are for reference only

# Haemodialysis



# Haemodialysis

## Patient's Choice

Private  
dialysis  
centre

Charitable  
dialysis  
centre

Home  
HD

Supported  
by HKKF

e.g.  
Lions Kidney Educational Centre  
and Research Foundation  
Hong Kong Kidney Foundation  
Other centre

## Patient's choice

## Hospital Authority

Home  
HD

The HA  
Haemodialysis  
Public Private  
Partnership  
Programme

Dialysis  
centres under  
Hospital  
Authority

For patients who are not or no longer  
suitable for peritoneal dialysis

# In-centre Haemodialysis in contrast to CAPD

## Advantages

- Usually 2-3 treatments a week, giving patients 4-5 days off
- No equipment or supplies have to be kept at home

## Disadvantages

- Intermittent therapy, strict renal diet and fluid restrictions are required
- Having too much water in the body may have a higher cardiac event
- Access sites run the risk for infection
- May not be able to set their own treatment schedule
- Travel to a dialysis centre

**Economic burden if it's a patient's choice treatment**

# Home Haemodialysis

# Home Haemodialysis

- Nocturnal home HD by Hospital Authority has been implemented since 2007.
- It is carried out by patient at home, usually 3-4 treatments a week for 6-9 hours overnight or in daytime.
- Target patients
  - (1) **Home HD provided by Hospital Authority (medical reasons):**  
For patients who are not or no longer suitable for peritoneal dialysis, and elect to choose home HD.
  - (2) **Patient's choice (social reasons):**  
Patients who are suitable for home HD.  
Patients need to join the machine rental plan (\$3,000 a month).  
HKKF (Li Ka Shing Foundation) provides a monthly subsidy of \$3,000.
- Hospital Authority provides the training and consumables.



# Home Haemodialysis in contrast to CAPD

## Advantages

- Carry out by patient at home, usually 3-4 treatments a week for 6-9 hours overnight.
- Greater flexibility in the treatment schedule
- More freedom in their daily living
- Fewer dietary restrictions
- Longer dialysis more closely mimics the natural functions of the kidneys

## Disadvantages

- Dialysis equipment have to be kept at home
- May require home plumbing and electrical renovations to install a dialysis machine
- Time to set up the dialysis equipment and needling

**Economic burden if it's a patient's choice treatment**

### 3. Longer-term plan

Dialysis  
=> Kidney transplant

# Kidney Transplant

Hospital Authority

Private, Mainland  
China & overseas

Deceased donor

Living donor (family member)

**Living-donor kidney transplant can  
be done before dialysis is needed**

# 4. Conservative Care

Patients with end-stage kidney disease  
who are deemed not suitable  
or elect not to pursue kidney replacement therapy





# Conservative Care in Patients with End-stage Kidney Disease

Patients not opt for or not benefit from kidney replacement therapy can opt for conservative care after shared decision making with family and health care professionals.

It is a treatment option for patients with end-stage kidney disease.

Health care professionals focus on enhancing quality of life and improving symptoms through a holistic care and multidisciplinary approach.

# 5. Financial Consideration

Conversion: HK\$1,000 = US\$128

# Peritoneal Dialysis \$\$\$

## CAPD

Hospital Authority
Initiation cost (one-off): ~\$4,500-\$5,000
Recurrent cost (monthly): ~\$1,000-\$1,500

~\$5,700

1<sup>st</sup> month expenses

Subsequent monthly expenses ~\$1,000-\$1,500

## Hospital Authority

Initiation cost (one-off): ~\$3,000-\$4,000
Recurrent cost (monthly): ~\$800-\$1,000

~\$4,400

~\$800-\$1,000

## APD

Patient's choice		
Subsidised by Hong Kong Kidney Foundation		Direct rental from suppliers
<b>Free-Loan APD Program</b> May rent same model from supplier while waiting approval	<b>Co-Fund Co-Use APD Program</b> <b>\$2,333/month for 36 months</b>	Equipment rental (monthly) <b>~\$2,500-\$3,210</b>
Initiation cost (one-off): : ~\$3,000-\$4,000		
Recurrent cost (monthly): ~\$2,300-\$2,500		
Insurance contract: ~\$720 annually Maintenance contract : ~\$4,200-\$4,500 annually Purchase at 19 <sup>th</sup> month		(Supplier A) deposit \$5,000 + 2 months upfront payment (Supplier B) deposit \$3,210
		+ 2 months upfront contribution (\$4,666)

~\$6,600

~\$2,400

~\$11,300

~\$4,700

\$12,300-15,900

\$4,900-\$5,610

May seek financial assistance from a medical social worker

# Haemodialysis \$\$\$

Centre	Home	Home	Centre
Charitable & private organisations	Patient's choice	Hospital Authority	Dialysis centres under Hospital Authority and the HA Haemodialysis Public Private Partnership
<p>Charitable</p> <p>\$1,200 - \$2,000 per treatment</p> <p>Private</p> <p>\$XXXX</p>	<p>Water cost:~\$150-\$300 a month Electricity cost:~\$150-\$400 a month</p> <p>Consumables:~\$1,000 a month</p> <p>Delivery charge:~\$150 a month</p> <p>Equipment rental:\$3,000* a month *subsidized by Hong Kong Kidney Foundation</p>		<p>\$120 per treatment</p> <p>2-3 treatments a week</p>

~\$1,500-\$1,700 a month

May seek financial assistance from a medical social worker

# **Kidney Replacement Therapy**

## **Financial Burden on Hospital Authority**



# Kidney Replacement Therapy

## Financial Burden of Hospital Authority – Direct Medical Expenses

	Haemodialysis		Peritoneal Dialysis	Kidney Transplant
	Home HD	In-centre HD		
Total annual cost in initial year including dialysis access surgery	~HK\$223,000	~HK\$400,000	~HK\$118,000	~HK\$250,000
Total annual cost subsequent year	~HK\$87,000	~\$HK360,000	~HK\$81,000	~HK\$60,000

Conversion: HK\$1,000 = US\$128

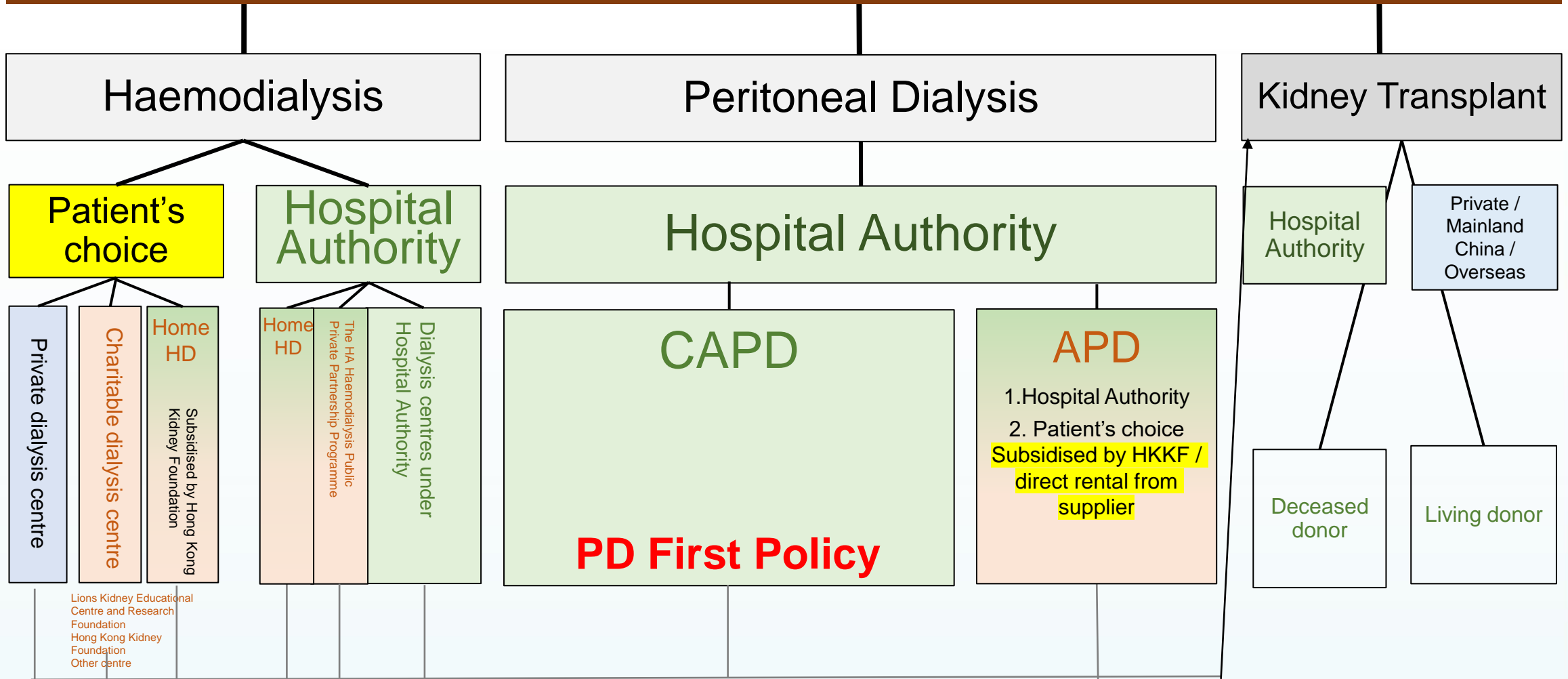
Source: Direct and indirect costs of end-stage renal disease patients in the first and second years after initiation of nocturnal home haemodialysis, hospital haemodialysis and peritoneal dialysis. Nephrology Dialysis Transplantation 2019,34:1565

The above costs are for reference only

# **Living with Kidney Disease**

**Discuss with your Health Care Team  
and Family  
to consider your options**

# Kidney Replacement Therapy



Conservative Care in ESKD

The background of the slide features a stylized landscape. A winding path in shades of orange and yellow leads from the bottom left towards the center. The path is bordered by rolling hills in various shades of orange, red, and yellow. In the upper left, there are stylized white clouds against a light blue sky. A bright sun is positioned on the left side, casting a strong glow and creating a lens flare effect across the scene.

**Face kidney disease positively**  
**Living well with kidney disease**

**積極面對腎病**  
**復康豐盛人生**



Host organiser: Hong Kong Kidney Foundation

<https://hk kf.org.hk/>



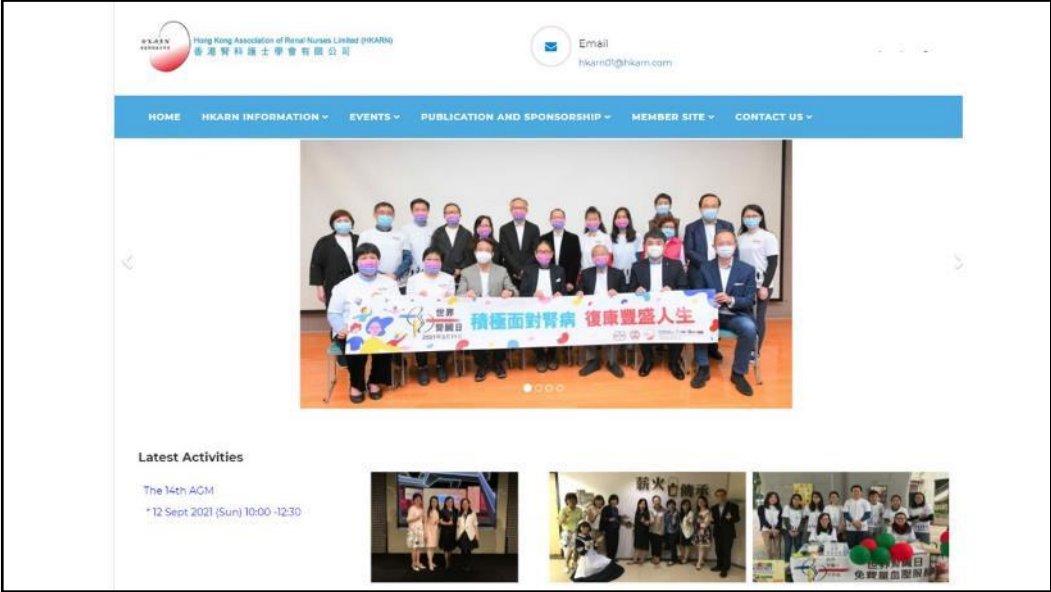
Co-organisers: Hong Kong Society of Nephrology

<https://www.hksn.org/>



Co-organisers: Hong Kong Association of Renal Nurses

<https://www.hkarn.com>



Partner: Alliance for Renal Patients Mutual Help Association

<http://www.arpmha.org.hk/>





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