

Frontiers in Medical and Health Sciences Education 2020
“Medical Education Disrupted – Negativity or Creativity” Virtual Conference



Development of Adaptive Scenario-based E-Learning Modules to Enhance Clinical Competencies in Medication Management

Janet KT Wong*; Alan J Worsley

Department of Pharmacology and Pharmacy
The University of Hong Kong

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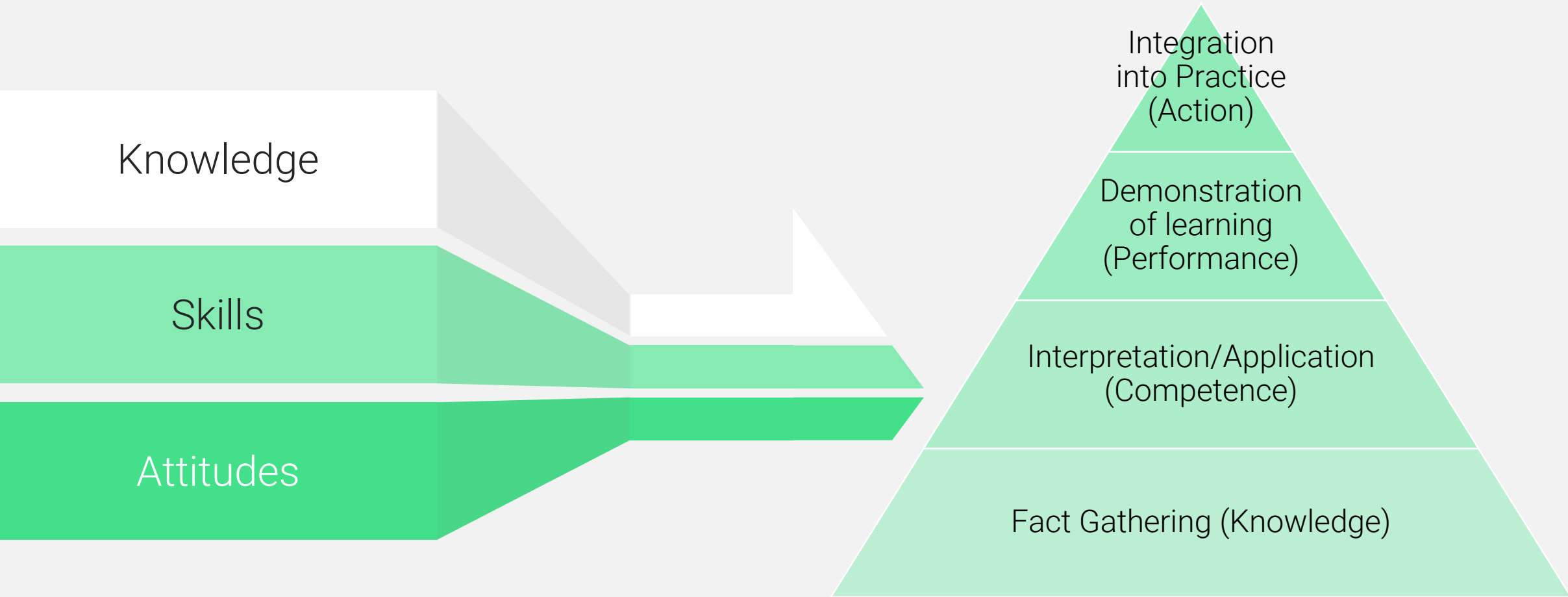
Adaptive Scenario-based E-Learning Modules

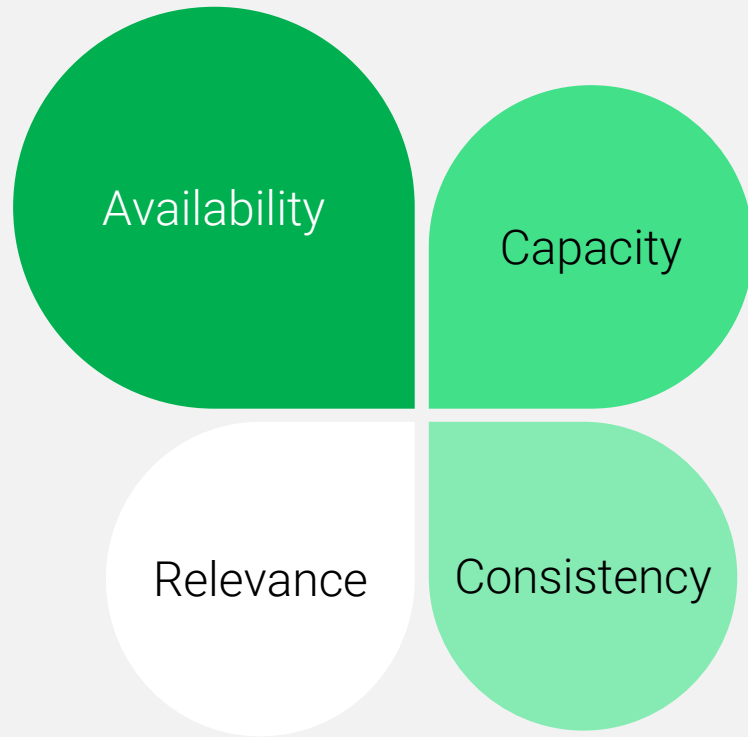
Why?

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Clinical Competence





E-Learning for Health Education

- Limitations of real-world training sites
 - Availability subject to multiple factors
 - Capacity
 - Relevance to learning objectives
 - Consistency of teaching
- Role of e-Learning
 - Additional simulated learning environment
 - Reproducible and scalable
 - Self-paced



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What?

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Adaptive Scenario-based e-learning Modules

- Adaptive
 - Different decisions made by students will lead to different outcomes
 - Allow students to learn from feedback and consequences of their own decisions
- Scenario-based
 - Virtual clinical case – Clinical documents, audio-visual data
- E-Learning
 - Moodle Learning Management System – Lesson Module



ACTIVITIES

- Assignment
- Attendance
- Chat
- Choice
- Database
- External tool
- Feedback
- Forum
- Glossary
- Group choice
- iClass
- Interactive Content
- Journal
- Lesson
- Open Forum
- OU blog

The lesson activity module enables a teacher to deliver content and/or practice activities in interesting and flexible ways. A teacher can use the lesson to create a linear set of content pages or instructional activities that offer a variety of paths or options for the learner. In either case, teachers can choose to increase engagement and ensure understanding by including a variety of questions, such as multiple choice, matching and short answer. Depending on the student's choice of answer and how the teacher develops the lesson, students may progress to the next page, be taken back to a previous page or redirected down a different path entirely.

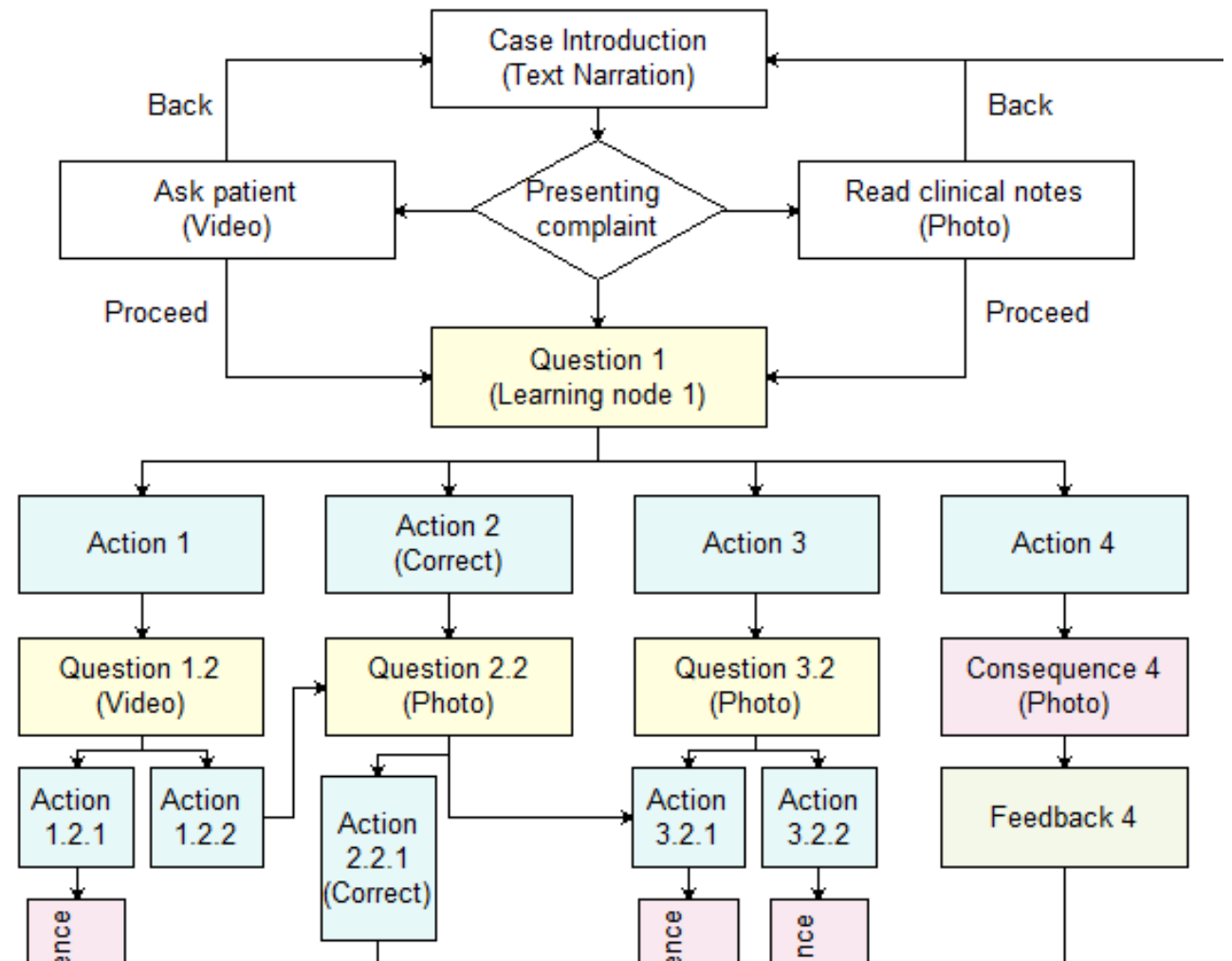
A lesson may be graded, with the grade recorded in the gradebook.

Lessons may be used

- For self-directed learning of a new topic
- For scenarios or simulations/decision-making exercises
- For differentiated revision, with different sets of revision questions

Add

Cancel

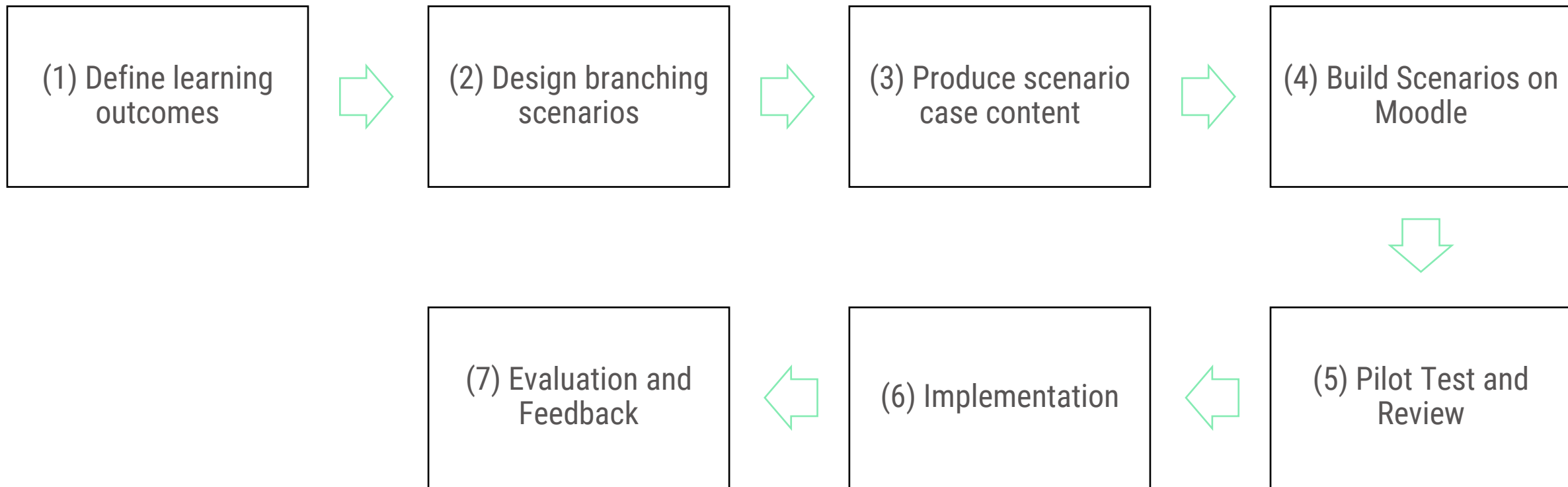


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How?

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- ▶ Participants
- ▶ Badges
- ▶ Competencies
- ▶ Grades
- ▶ General
- ▶ Topic 1
- ▼ Teaching materials
 - ▶ Cardiology Case
 - ▶ Testing
 - ▶ Topic 3
 - ▶ Topic 4
 - ▶ Topic 5
 - ▶ Topic 6
 - ▶ Topic 7
 - ▶ Topic 8
 - ▶ Topic 9
 - ▶ Topic 10



Case No: HN12345678(3)				Back	Home
Patient Name: CHAN MEI BO (陳美寶) Sex: F Age 82y					
Admission Note	Echocardiography Report	Laboratory Investigations	Medication		

You are a pharmacist working in HKU Hospital E2 Ward. MBC, F/82, has just been admitted to the ward for SOB.



- Communicate with the Patient
- Examine the Patient

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1 Moodle Support

- FAQs for Teachers
- User guides for Teachers
- User guides for Students
- Training & Workshops
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- FAQ on using IE browser
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ITS Support Hotline:
(852) - 3917 0123

ITS Support Email:
ithelp@hku.hk



My courses

- ▶ PCP Patient Care Project [2019]
- ▶ MCLINPHARM MCLinPharm 2020 [2020]
- ▶ BPHARM BPharm 2020 [2020]
- ▶ PHAR6202 Evidence based practice [Section 1A, 2020]
- ▶ MCLINPHARMDEVELOP MCLINPHARM Development 2019 [2019]
- ▶ BPHARM BPHARM [2019]
- ▶ MCLINPHARMYEAR1 MCLINPHARMYEAR1 2019 [2019]
- ▶ MCLINPHARMYEAR2 MCLINPHARMYEAR2 2019 [2019]
- ▶ MCLINPHARMYEAR2 MCLinPharmYear2 [2018]
- ▶ MCLINPHARMYEAR1 MCLinPharmYEAR1 [2018]
- ▶ BPHARM BPharm [2018]
- ▶ MCPH7201 Research Project [Section FA, 2020]
- ▶ MCPH7103 Professional Practice - Care of the Elderly [Section 2A, 2020]
- ▶ MCPH7102 Professional Practice - Paediatrics

HKU Teaching Hospital

Case No.: HN12345678(3) HKID: A234567(0)
 Name: CHAN MEI BO (陳美寶)
 Sex: F Age: 82y DOB: 15-Mar-1937
 Ward: E2 Spec.: MCAR

Admission Notes

Admission Date: 12-Sep-2019 15:20 Admission Source: A&E Transfer From: N/A

Team: CARD

CXR: Cardiomegaly, mild congestion

Mx:

Fluid Restriction <1L per day

Obs Q4H

Bloods X CBC LRFT CK Trop T

Resume Usual meds

Off PO Lasix, start IV Lasix 40mg Q8H

Sputum c/st

Medical Officer In Charge:

DR. CHAN TAI MAN



Date

Signature

Case No: HN12345678(3) Back
 Patient Name: CHAN MEI BO (陳美寶) Sex: F Age 82y

- Admission Note
- Echocardiography Report
- Laboratory Investigations
- Medication

- Communicate with the Patient
- Examine the Patient

Monitoring Parameters	Levels			
	12/9/19	14/9/19	16/9/19	Normal Range
Sodium	143	143	138	136-148 mmol/L
Potassium	4.0	3.4 L	3.5 L	3.6-5 mmol/L
Chloride	103	104	86 L	100-109 mmol/L
Urea	8.9 H	11.0 H	12.0 H	2.9-8 mmol/L
Creatinine	92 H	94 H	90 H	49-82 umol/L
Estimated GFR	36 L	35 L	38 L	>90 unit
Calcium	2.25	2.17 L	2.36	2.42-2.63 mmol/L
Adj calcium	2.31	2.27	2.48	2.24-2.63 mmol/L
Phosphate	1.17	1.09	1.16	0.88-1.45 mmol/L
Total protein	78	74	80	67-87 g/L
Albumin	39	37 L	36 L	39-50 g/L
Globulin	39	37	44 H	26-40 g/L

Examine the patient



HKU Teaching Hospital

Case No: HN12345678(3) Back Home
 Patient Name: CHAN MEI BO (陳美寶) Sex: F Age 82y

- Admission Note
- Echocardiography Report
- Laboratory Investigations
- Medication

As you pressed onto the patient's swollen leg, a pit was formed and remained for a while.



Are you taking any other OTC/Chinese Medicine/Medications from other providers?



Communicate with
the Patient

Observe the
Patient

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Well done!

Self-medication with over-the-counter medication and health products is common. It is always important to check if the patient is taking any other medications, as well as those prescribed by other providers, so as to check for potential drug-induced problems or drug-drug interactions. Healthcare professional can take this opportunity to reconcile the medication record and provide education if appropriate.



Learning Node

1. Upon stabilization, Furosemide was switched to oral and the dose was titrated to 60mg BD. Which of the following action is the most appropriate for the patient?

A Initiate Lisinopril 5mg daily and discontinue Amlodipine

B Initiate Digoxin 0.125 mg daily

C Initiate Spironolactone 25mg daily

D Initiate Lisinopril 5mg daily

After the initiation of Lisinopril, the patient's BP dropped to 103/50. The patient also complained that she was getting dizzy and tired. Which of the following action is the most appropriate now?

- A. Discontinue Amlodipine
- B. Discontinue Lisinopril
- C. Discontinue Metoprolol CR
- D. No action required as her BP is within normal range.

A Discontinue Amlodipine

B Discontinue Lisinopril

C Discontinue Metoprolol CR

Question 1 Initiate Lisinopril 5mg daily and discontinue Amlodipine

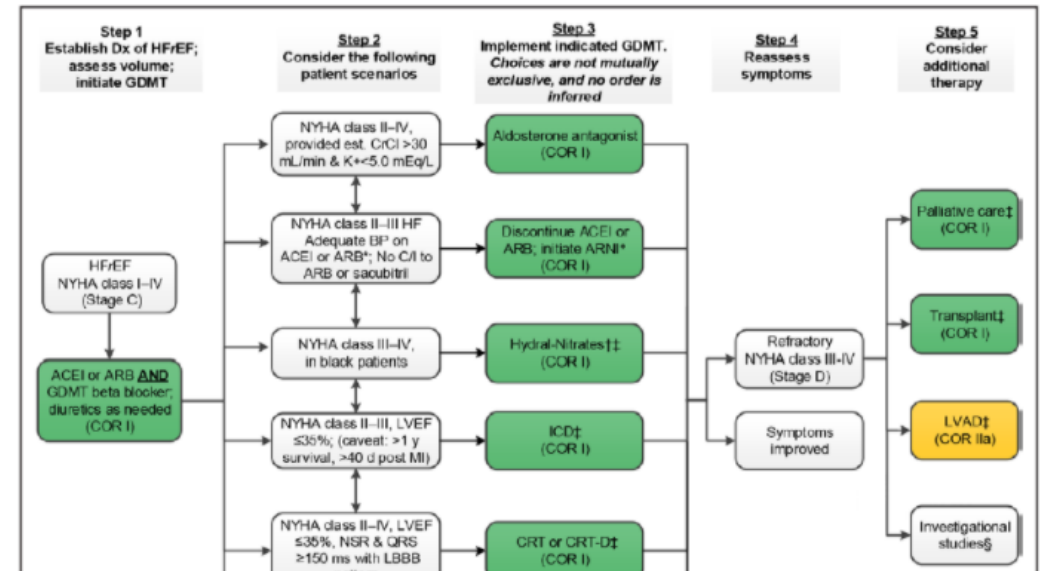
You chose A:

Initiate Lisinopril 5mg daily and discontinue Amlodipine

Feedback:

Correct!

This patient has HFrEF with LVEF 35%, and she belongs to NYHA Class III as she has marked limitations on physical activity but asymptomatic at rest. However, according to 2017 ACC/AHA/HFSA Guideline on Management of Heart Failure, she is not receiving the optimal HF therapy with ACEI and beta-blocker, so the initiation of lisinopril is rational as all HF patients should be initiated with ACEI unless there is a contraindication. In view of her relative low BP (121/60), and the lack of proven benefit of DHP CCBs on morbidity or mortality in HF, amlodipine should be discontinued.



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Observations

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Students

- Supplements didactic teaching
- Flexible to fit into self-paced learning
- Instant feedback can guide learning
- Good readiness to use the Moodle platform
- Good for motivated learners



Teachers

- No extra cost and time to build and to get accustomed to the new online platform
 - Low technical barrier to maintenance
- Suitable for simple clinical cases and focused learning outcomes
 - Technical restrictions intrinsic to Moodle system limit the level of details and flexibility in the clinical case design
- Takes time to develop case flow and audio-visual materials
- Less efficient for follow-up discussions than problem-based learning and online clinical case workshops



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Conclusion

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Conclusion

- Adaptive scenario-based e-learning modules are
 - Viable teaching and learning strategy
 - Not bound by classroom and training sites
 - Suitable as supplement to didactic sessions in development of clinical competencies



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Thank you
janetwkt@hku.hk

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