

Healthcare Training by Virtual Reality Technology - Experience in Hong Kong Formula E 2016

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Medsim Healthcare Education Co.



2016 FIA FORMULA E
HKT HONG KONG ePRIX

8-9 OCTOBER (CENTRAL HARBOURFRONT)
2016 FIA FORMULA E HONG KONG ePRIX



Background

- There are doctors, nurses, paramedics, rescue personnel working for medical care in motorsports. A constant desire to enhance their knowledge, skill and coordination, is very important to enhance the safety during motorsport events.
- The course aligns with the Formula-1 training program in worldwide by different FIA ASN according to FIA guideline, together with the latest research finding such as ILCOR resuscitation guideline on traumatic cardiac arrest, Tactical and Combat causality guideline for trackside care.
- Participating healthcare professionals and rescuers will be equipped with the knowledge and skills for providing timely medical care under a motorsport command and coordination platform.



**2016 FIA FORMULA E
HKT HONG KONG ePRIX**

Motorsport Medicine Incident Management Course

Organizer

- Organizer:
 - Hong Kong Jockey Club Disaster Preparedness and Response Institute of Hong Kong Academy of Medicine (HKJCDPRI)



- Supporting Organization:
 - Hong Kong Innovative Learning Centre for Medicine (ILCM)
 - Hong Kong Automobile Association
 - Hong Kong Jockey Club Charities Trust



Objectives

- Develop the knowledge and skills for healthcare professionals in providing emergency care in motorsport environment.
- Enhance the command and coordination with different parties such as fire service, police and racing control involved in FIA Formula-E

Target participant

- Majority for healthcare professionals who will be involved in 2016 FIA Formula E Hong Kong station.
- **Entry requirement**
 - Trauma care certificate such as ATLS/ ATCN/ TNCC / PHTLS / ITLS / SAVE (ITLS ACCESS) / BTLS / DMA / EMA....etc.
- **Class size**
 - 40 (8 to 10 students x 4 groups)(full day)
 - Instructor to student ratio: 1:10

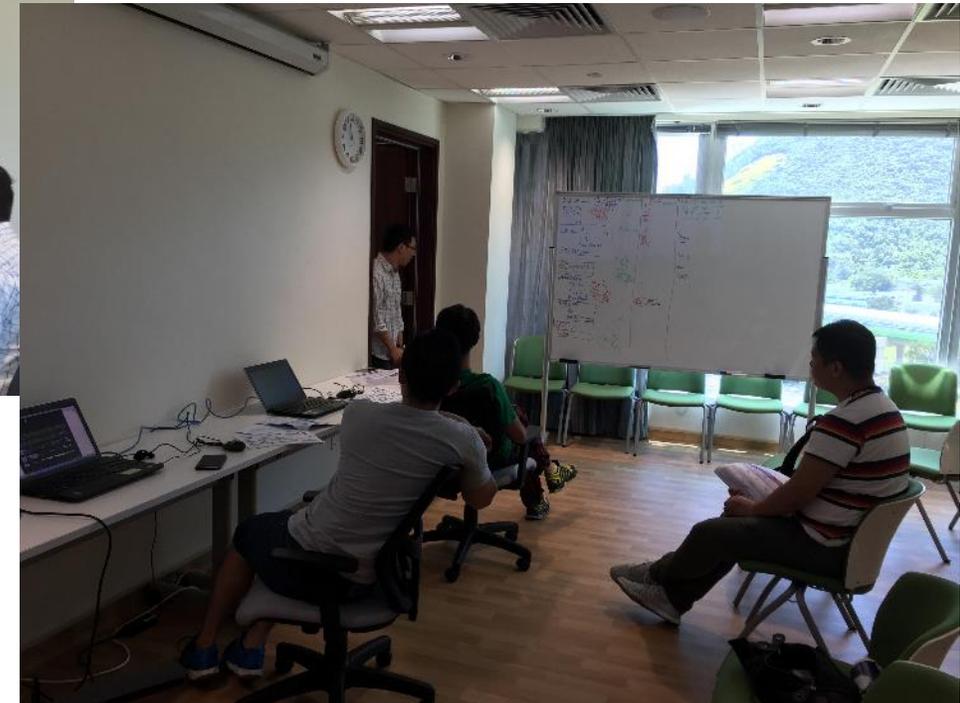
Certificate

- Certificate of attendance for Motorsport Medicine Incident Management Course by Hong Kong Jockey Club Disaster Preparedness and Response Institute of Hong Kong Academy of Medicine.

Pre-course Development

Pre-course Development – 1st round

- 1st discussion
 - Course Rundown
 - Instructor Duties
 - Scenario Design



Scenario Design Discussion

- What are the objectives of the training?
- What incident will happen in the scene?
- Where will the participant locate in the scene?
- What are the expected action and response of the participant?
- What will the facilitators need to do during the scenario?

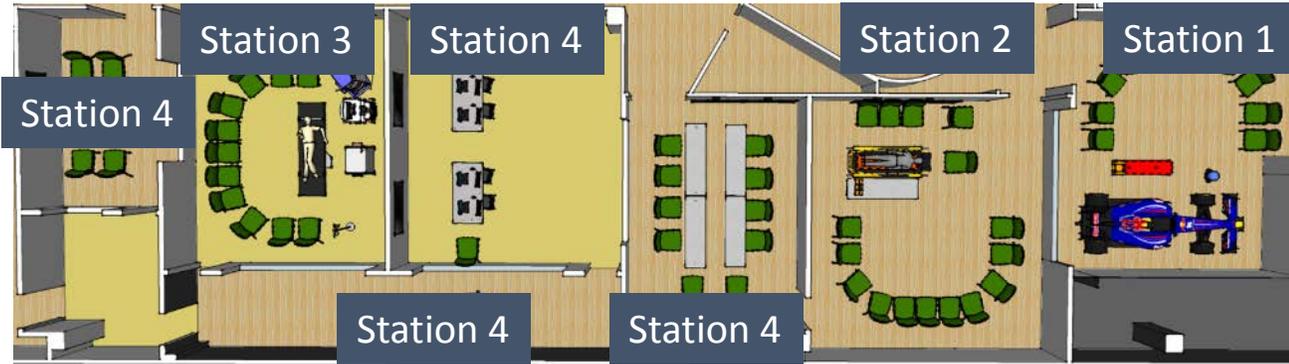
Pre-course Development – 2nd Round

- 2nd discussion
 - Course Updates
 - Scenario Review and testing
 - System Preparation and testing



Course Rundown

Floor Plan for the course



Agenda

Time	Duration (mins)	Content			
0900 - 0905	5	Course introduction			<i>Dr Jacky Chan</i>
0905 - 0935	30	Introduction to medical plan / Approach to incident			<i>Chacky Ip (CEO, HKAA)</i>
		Trackside care Simulation	Ambulance care simulation	Medical room care simulation	Command and coordination
		<i>Experienced track care personnel</i>	<i>EMA2</i>	<i>CMO from HKAA</i>	<i>HKAM VR team</i>
0935 - 1105	90	A	B	C	D
1105 - 1120	15	Tea Break			
1120 - 1250	90	B	A	D	C
1250 - 1345	55	Lunch			
1345 - 1350	5	group photo			
1350 - 1520	90	C	D	A	B
1520 - 1535	15	Tea Break			
1535 - 1705	90	D	C	B	A
1705 - 1730	25	Follow up discussion / Q&A Summary and Evaluation			<i>All instructors</i>
1730 - 1800	30	Faculty meeting			

Station 1: Trackside care simulation

- **Objective:**

- Apply hemorrhage control intervention on scene (Tourniquet, pelvic sling)
- Spinal management for racer
- Identify the “blue light” case must go to medical centre even self release and walk unaided

- **Content:**

- CAT tourniquet and Pelvic Sling (15 minutes)
- KED application (20 minutes)
- HANS and helmet removal (15 minutes)
- Scenario + debriefing 1 with mockup extrication (20 minutes)
- Scenario + debriefing 2 with mockup extrication (20 minutes)



Station 2: Ambulance care + Hemorrhage control simulation

- **Objective:**

- Identify critical situation inside ambulance
- Apply LUCAS
- Apply Defibrillator
- Apply ventilator

- **Content:**

- Introduction to their ambulance equipment during race (e.g. LUCAS, Zoll X Series) (20 minutes)
- Scenario + debriefing 1 (30 minutes)
- Scenario + debriefing 2 (30 minutes)



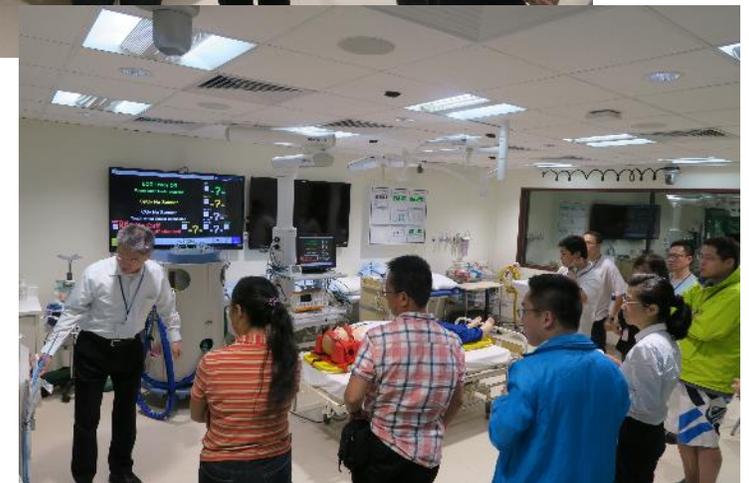
Station 3: Medical room care simulation

- **Objective:**

- Identify critical situation inside ambulance
- Apply LUCAS
- Apply Defibrillator
- Apply Oxylog ventilator
- Familiar with RSI and inotropic drugs
- Familiar with emergency cricothyroidotomy

- **Content:**

- Introduction to medical room environment and equipment
- Scenario + debriefing 1 (Desaturation patient with difficult intubation, required DOPE and mini-trach after intubate)
- Scenario + debriefing 2 (Shock Patient required trauma survey, aggressive fluid resuscitation and inotropic drugs)



Station 4 Command and coordination

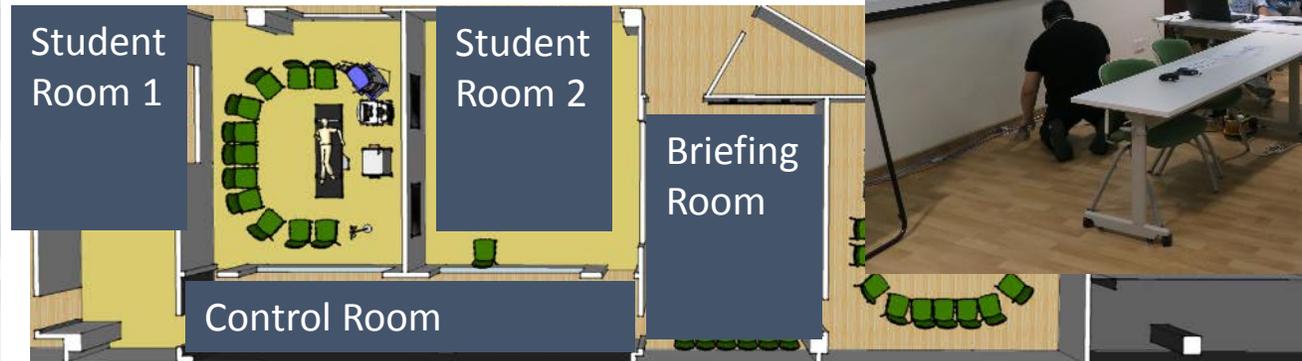
- **Objective:**

- Understand their role (ambulance , track first aid point, medical centre) (Separator area vs track area)
- Familiar with the communication and command chain during the accident in track
- Familiar with the communication and command chain during Multi casualty incident (MCI)
- Working with other stakeholders (HKAA, St John, Hospital Authority, Police, Security)

- **Content:**

- Introduction to XVR @ **Debriefing room 1** (10min) and then they will divided into 4 groups:
- Scenario + debriefing 1 (track incident) (35 minutes)
- Scenario + debriefing 2 (MCI) (35 minutes)

Station 4: Pre-training Briefing and Preparation



Station 4: During Training

Paramedic 1



Paramedic 2



Staff in control center



Student Room 1

Student Room 2

Briefing Room

Control Room



Student Room 1

- 3 to 4 students
- Students role:
 - Paramedic
- 1 facilitator
- 3 computers
 - 2 for students
 - 1 backup
- 1 Large TV



Student Room 2

- 3 to 4 students
- Students role:
 - Paramedic
- 1 facilitator
- 3 computers
 - 2 for students
 - 1 backup
- 1 Large TV



Briefing Room

- 2 to 3 students
- Students role:
 - Staff in control center
- 2 facilitators
 - Fire
 - Police
- 1 Projector

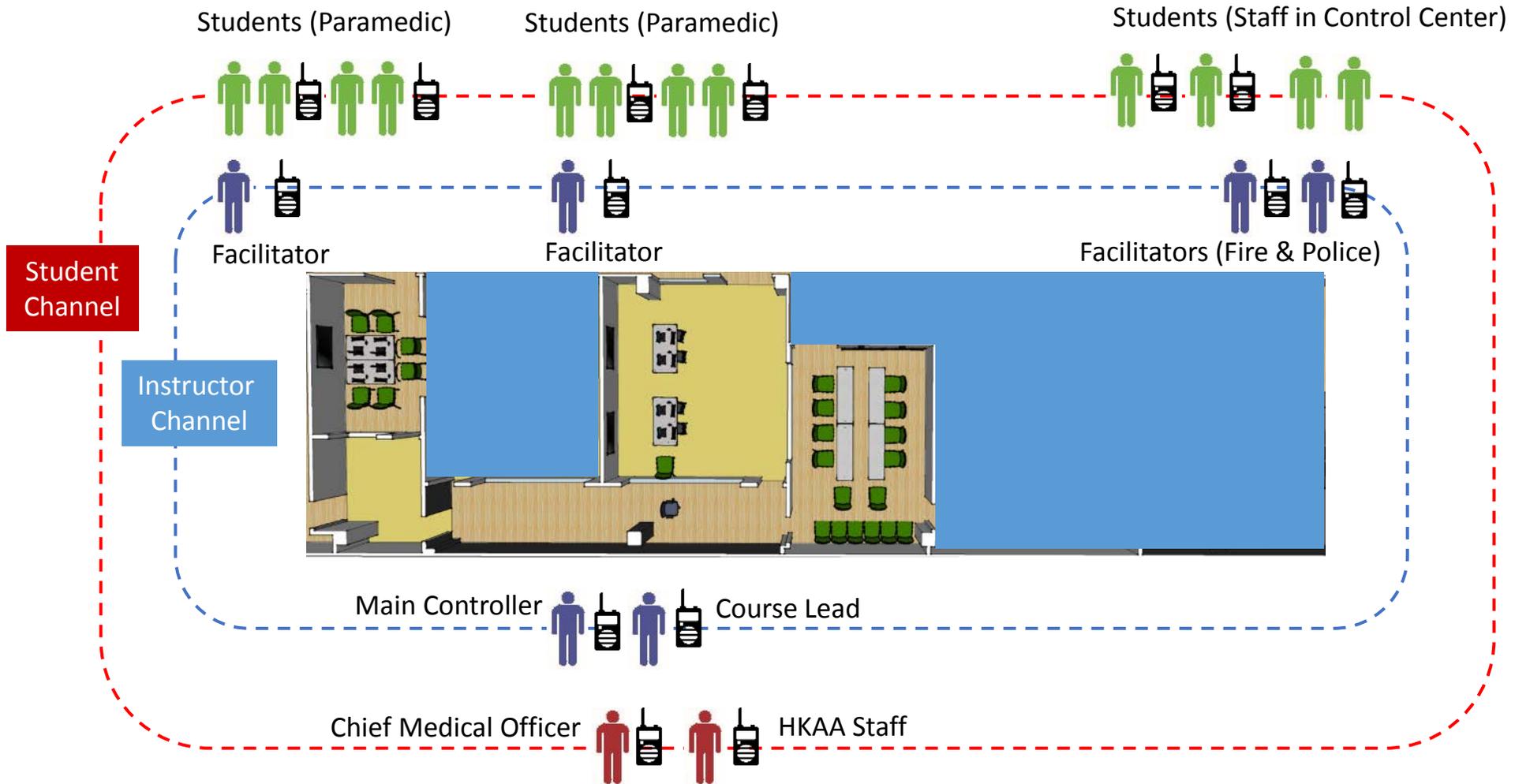


Control Room

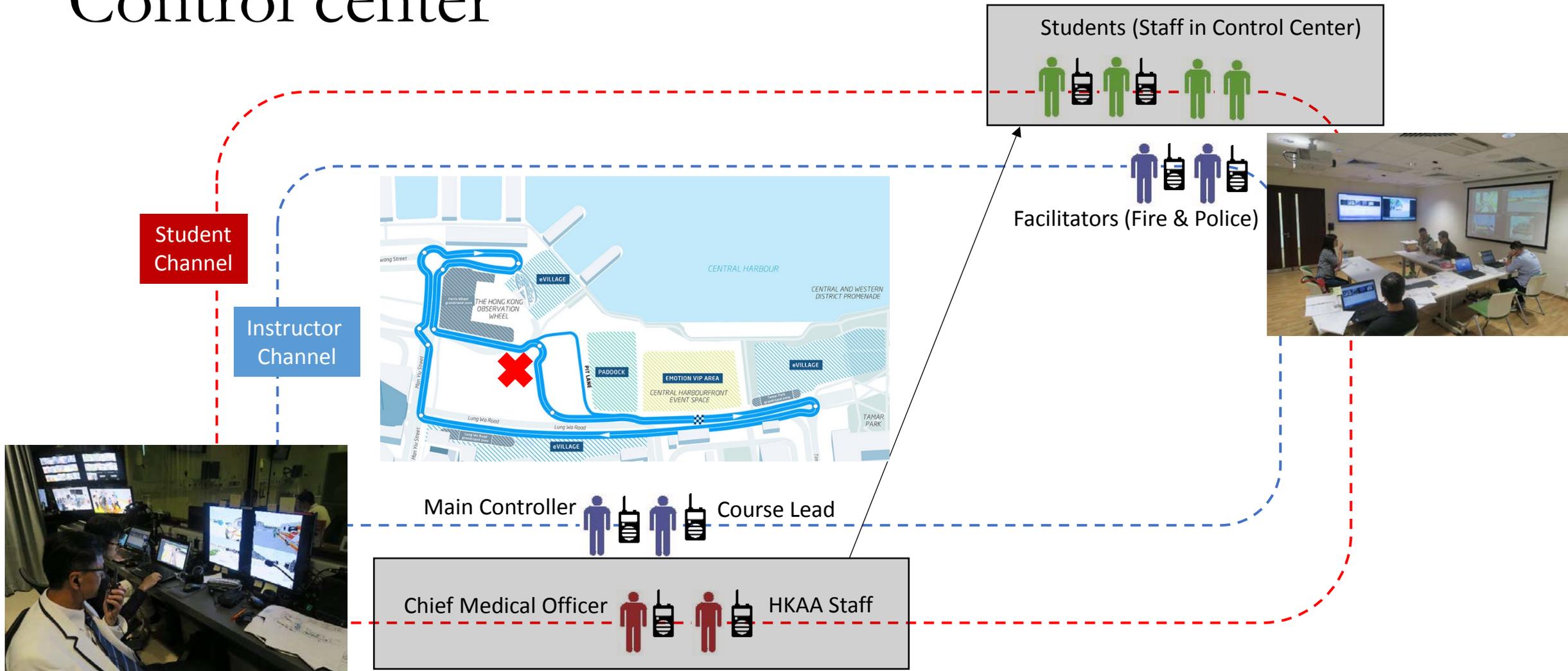
- Course Lead
- Controller
- Technician
- Chief Medical Officer
- Hong Kong Automobile Association staff



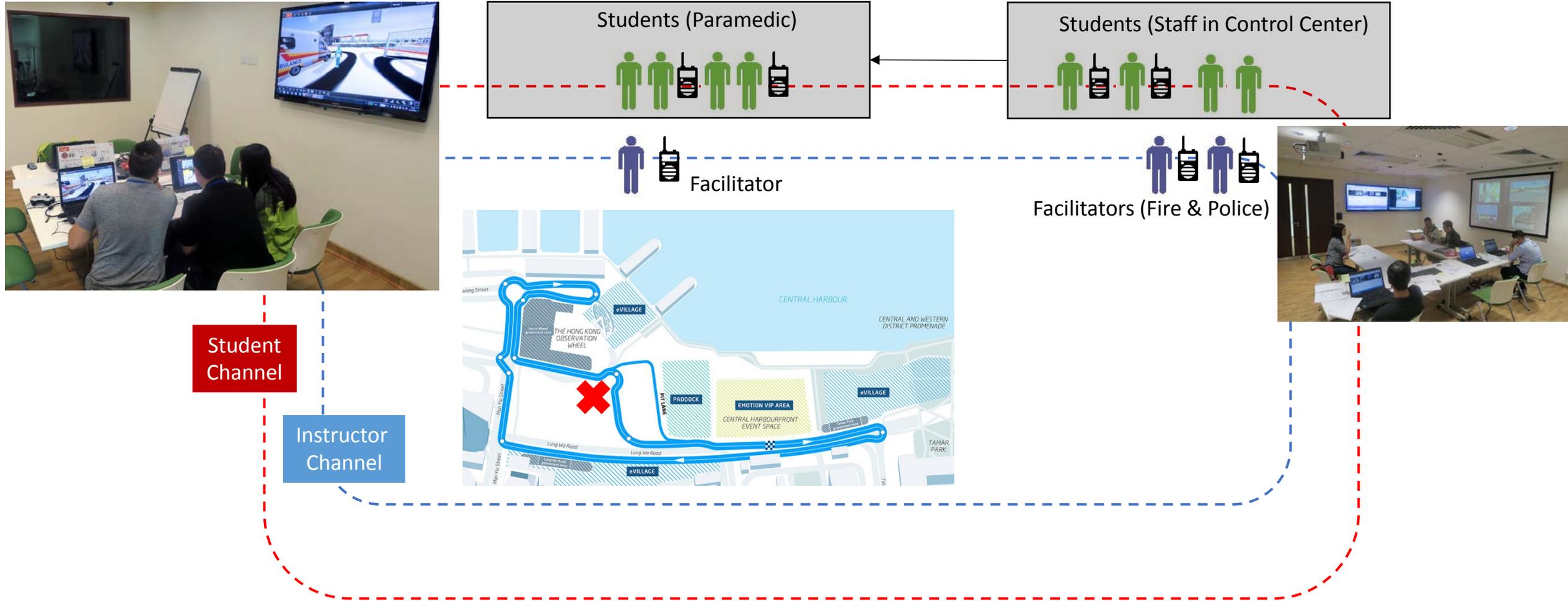
Walkie Talkie



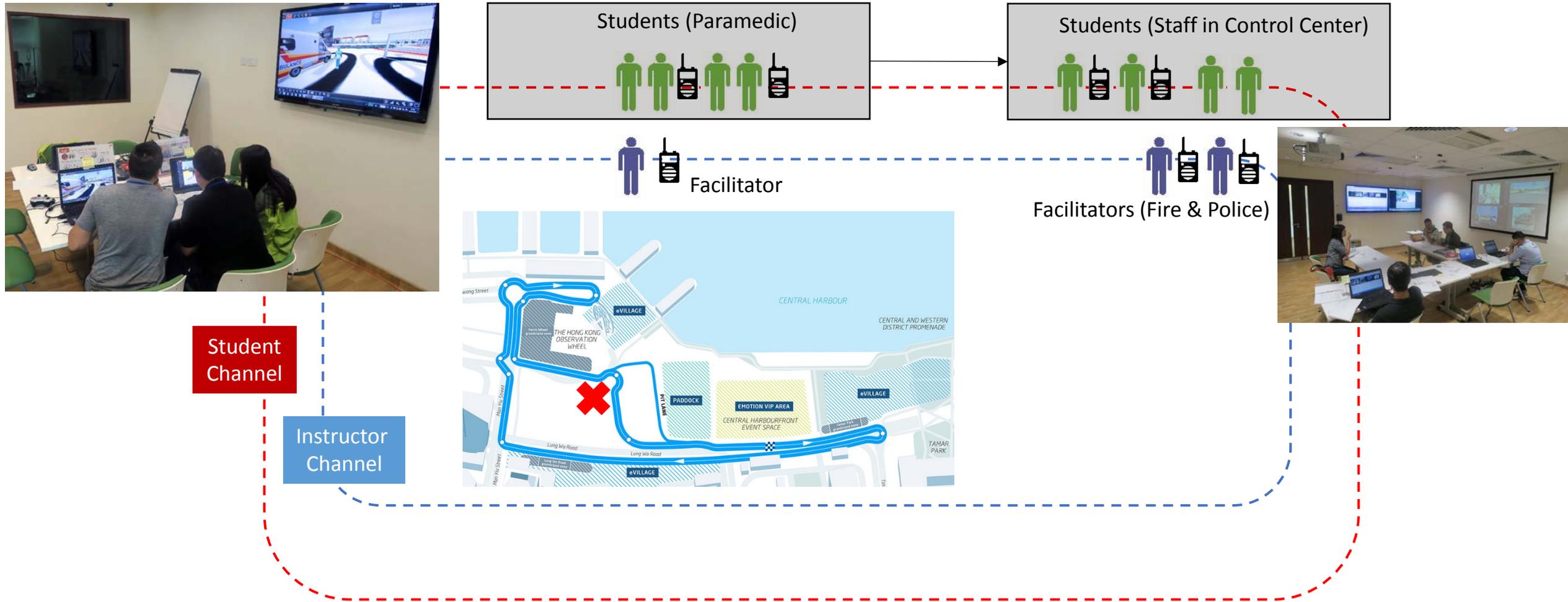
1 - Accident reported from Control Room to Control center



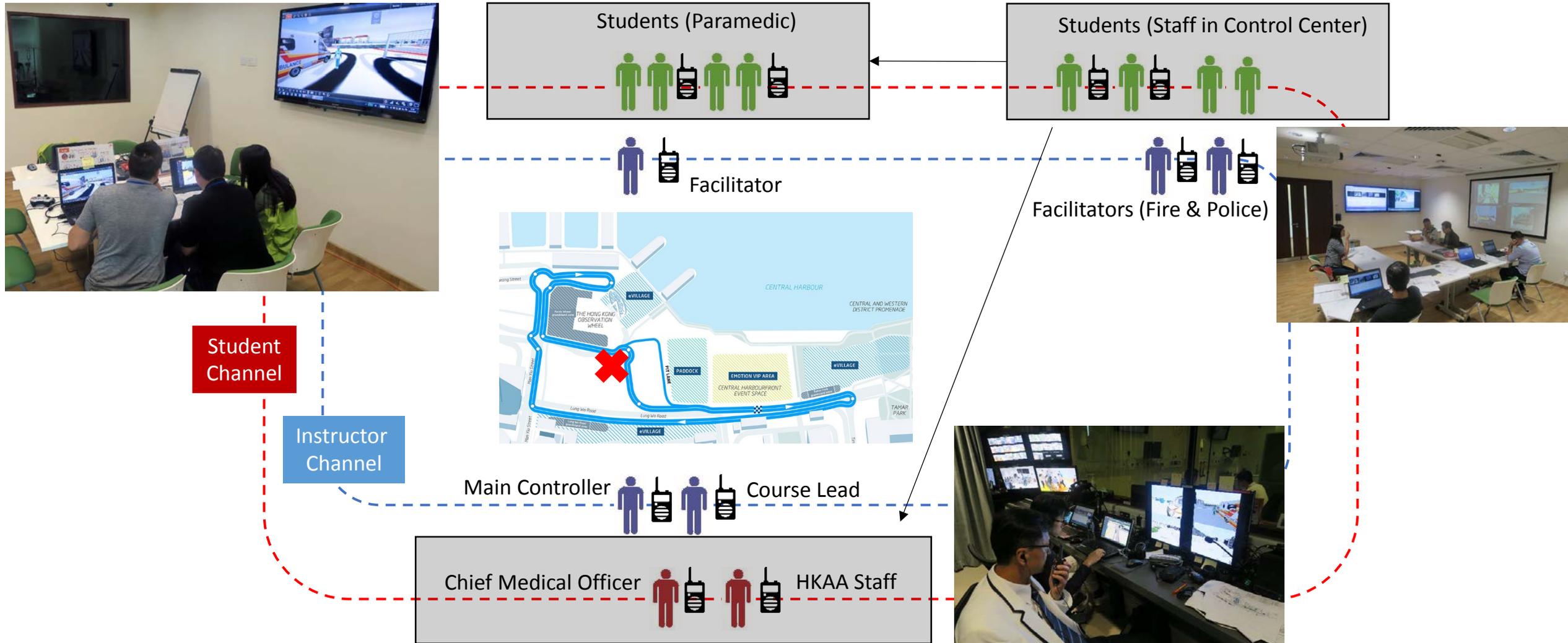
2 – Staff in control center assign the paramedic



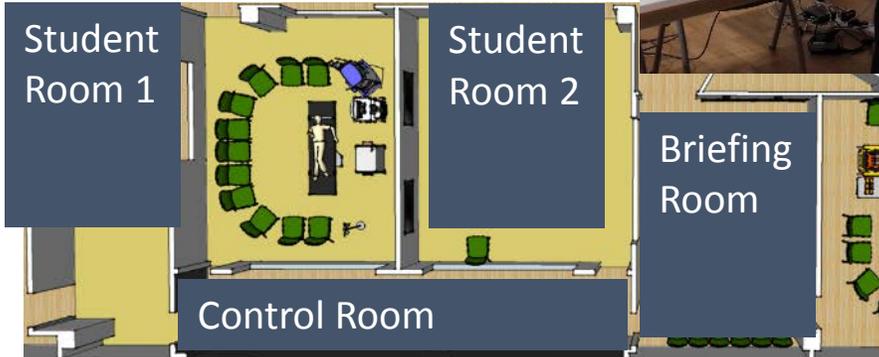
3 – Paramedic report the situation to the staff in control center



4 – Staff in control room will seek the approval from control room and assign further action to paramedic being on scene



Station 4: Debriefing after training



Advantages of using VR technology for training when comparing with Tabletop Exercise

VR Training

- More realistic training environment
- Make decision by limited information
- Save much time when resume the training
- More realistic command and report training



Tabletop Exercise



Thank You!