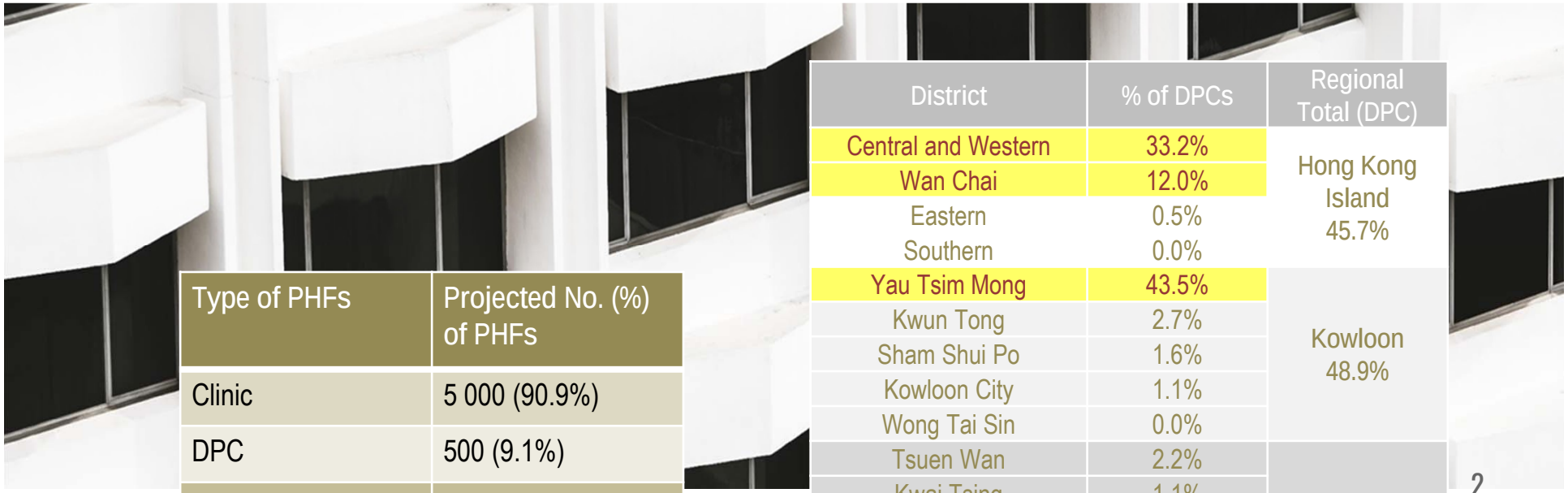
Assessment of Facility Provisions for Day Procedure Centres (DPCs) in Commercial Buildings

Distribution of DPCs in Hong Kong

Territory-wide Survey on Private Healthcare Facilities (2017)

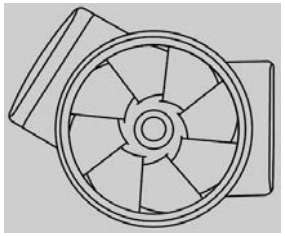


Type of PHFs	Projected No. (%) of PHFs
Clinic	5 000 (90.9%)
DPC	500 (9.1%)
Total	5 500 (100%)

Note:
PHFs – Private Healthcare Facilities
DPC – Day Procedure Centre

Observation :
Majority of DPCs are agglomerated in office buildings in central business districts

District	% of DPCs	Regional Total (DPC)
Central and Western	33.2%	Hong Kong Island 45.7%
Wan Chai	12.0%	
Eastern	0.5%	
Southern	0.0%	
Yau Tsim Mong	43.5%	Kowloon 48.9%
Kwun Tong	2.7%	
Sham Shui Po	1.6%	
Kowloon City	1.1%	
Wong Tai Sin	0.0%	
Tsuen Wan	2.2%	New Territories 5.4%
Kwai Tsing	1.1%	
Islands	0.5%	
North	0.5%	
Sha Tin	0.5%	
Tai Po	0.5%	
Sai Kung	0.0%	
Tuen Mun	0.0%	
Yuen Long	0.0%	
Total	100%	



Assessment of DPCs in Commercial Buildings

Healthcare Engineering Assessment on Office-based DPCs with Operating Rooms (2018)

Facility Provisions	Purpose-built Operating Room meeting internationally acceptable standards	General observations for Office-based DPC w/ Operating Room (OR)
Mechanical Ventilation and Air-conditioning (MVAC)	Based on international standard for healthcare facilities e.g. Health Technical Memorandum (HTM,UK), ASHRAE[#1](USA)	Office standard
Ventilation for OR (Day-case)	HTM 03-01 : 15 air changes per hour (ACH)[#2] ASHRAE 170 : 4 ACH (Outdoor) : 20 ACH (Total)	- Recirculated air purifier with high-efficiency particulate air (HEPA) filter may be installed - Fresh air supply < 4 ACH - Total air change < 20 ACH
Pressure gradient (Δp) for OR	Positive (relative to OR adjacent area) [HTM & ASHRAE]	Nil / Not known
Backup Power Supply	Backup supply should be available for critical care areas [HTM 06-01]	- Only for FSI backup and public lighting - Equipment backup by uninterruptible power supply (UPS) / internal batteries

[#1] *American Society of Heating, Refrigerating and Air-Conditioning Engineers*

[#2] *Airflow in volume units per hour divided by the volume of the space on which the air change rate is based in identical units*

Assessment of DPCs in Commercial Buildings

Study on Facility Information in Commercial Buildings with DPCs (2019)

Facility Information of Commercial Buildings with DPCs	Availability (%) *	General Observations from on-site visits
Layout plans / as-built drawings	94.7%	Available and accessible
Data on Mechanical Ventilation and Air-conditioning (MVAC)	84.2%	Normally available in different levels of detail : - Dedicated fresh air supply or mixed w/ recirculated air - Flow rate of Primary / Air Handling Unit only; or - Flow rate of each Variable Air Volume box
Provision for Air Extraction (apart from toilet extraction)	52.6%	Some available via ductwork or exhaust louver
Alterative Source of Fresh Air	78.9%	• Window / curtain wall opening normally available for air intake / exhaust • May require permission from property management • Stand-alone PAU is occasionally available
Provision of Backup Power for Non-Fire Service Installation	52.6%	• Normally absent except for public lighting • non-FSI generator set is occasionally available
Emergency Transfer Measures	100%	Normally pre-arranged for special lift service

* Interim results based on 19 returns from 27 commercial buildings as of November 2019

Possible arrangements for getting extra fresh air

	Possible Sources of Extra Fresh Air for DPCs	Prime Considerations
1.	Redistribution of fresh air supply from Primary Air Handling Unit (PAU) to DPC floor/premises	- Adequacy of fresh air supply to other areas
2.	Alternative fresh air intake from openings inside / adjacent to DPC premises	- Aesthetic impact - Deed of Mutual Covenant (DMC) - Buildings Ordinance
3.	Provision of dedicated PAU in Air Handling Unit (AHU) room / mechanical floor	- Plant room size - Space for extra ductworks
4.	Upgrading capacity of PAU and associated ductworks	- Plant room size - Space for larger ductworks - Down time for other tenants

Fresh Air Supply for DPCs in Commercial Buildings

Natural Ventilation Requirements for Non-domestic Buildings (Office)

Area of openable windows ≮ 1/16 of floor area [#1]

Area of openable windows ≮ 1% of floor area & be readily opened [#2]

All units can receive natural ventilation in case of mechanical system failure [#2]

Equally distributed about the façade [#2]

[#1] Cap 123F Building (Planning) Regulations 30(2)(a)(ii)

[#2] Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers - Centralized Processing of Building Plans (PNAP ADM-2) - Modification to B(P)R 30(2)(a)(ii)

Back-up Power Supply in Critical Care Area

Examples of Equipment fitted with Back-up Power

Surgical Light

Anaesthetic machine

Vital sign monitor

General light for OR

Input from engineering/building professional & property/facility manager of commercial building

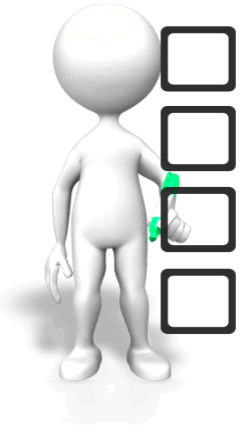
Setting up a new DPC with OR / retrofitting an extant OR

Check information on:

- updated floor plan(s) of the building
- as-built drawings of building services
- size and height of tenant unit / each floor
- normal electricity available to tenant unit/each floor
- emergency transfer of tenants' clientele by ambulanceman (e.g. lift service)

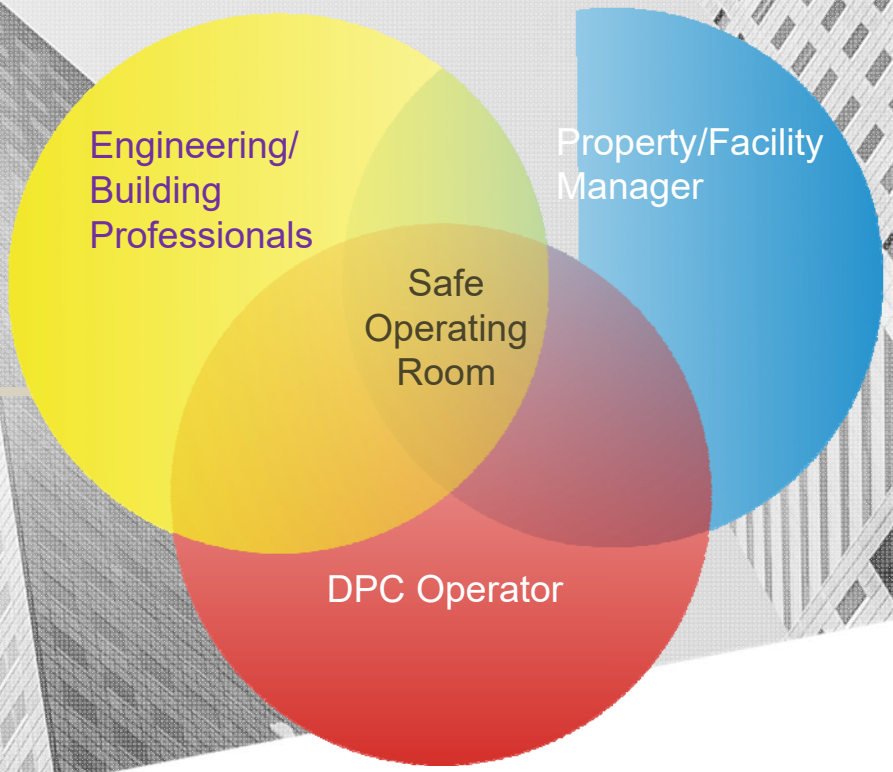
Consider and advise means for:

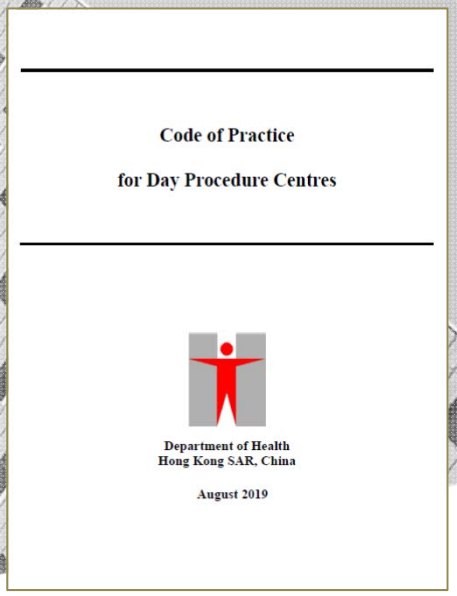
- supplying conditioned air and fresh air
- getting extra fresh air supply if necessary (e.g. space for standalone PAU or window / louvre to open air)
- removal of exhaust gas (e.g. waste anaesthetic gases)



Setting Up an OR with Internationally Acceptable Standards

Collaboration by Stakeholders



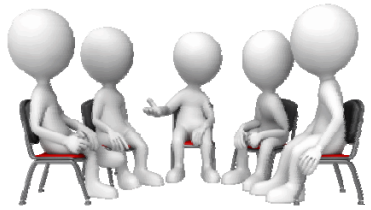

Code of Practice

for Day Procedure Centres

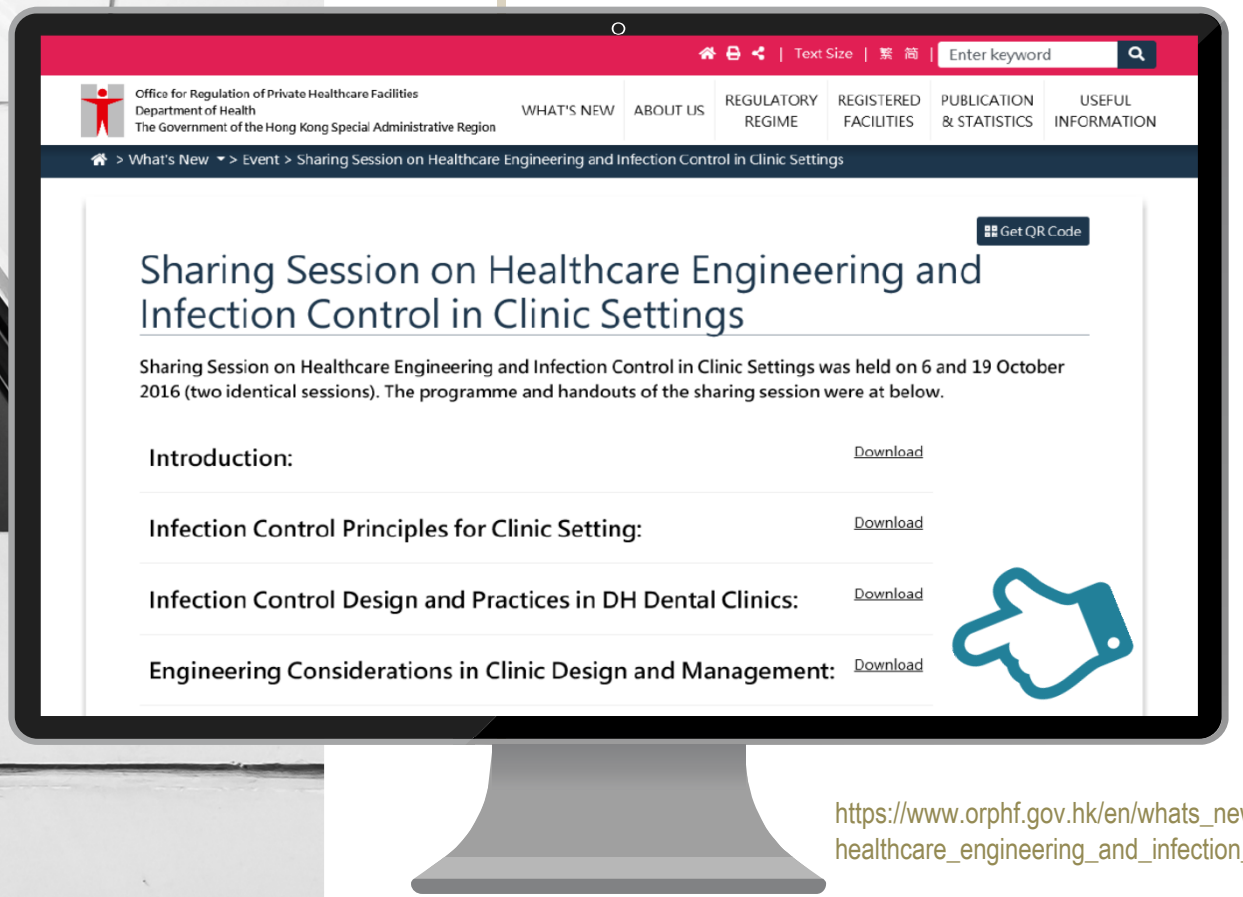
Department of Health
Hong Kong SAR, China

August 2019

https://www.orphf.gov.hk/files/forms/PHF(E)_21A_CoP_DPC.pdf



Useful reference materials



https://www.orphf.gov.hk/en/whats_new/events/sharing_session_on_healthcare_engineering_and_infection_control_in_clinic_settings#


Thank you for your
patience