Upgrading of Histopathology Lab to accommodate ACGME Program

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Introduction:

History of Histopathology in KKH

2. Constructing Budget and Writing Grant Proposal

Construct budget and writing grant proposal for the renovation of the existing facility and major upgrading which include:

- 1. Lab space expansion
- 2. Enhancement of exhaust and airflow / air condition systems

1991

 Histopathology services at KKH started as an outpost of SGH's Dept of Pathology to provide basic routine services

2005

•Began to have own histopathologists on site, in line with KKH evolution towards an academic medical centre. KKH Histopathology was instituted by MOH as a centre for Accreditation Council for Graduate Medical Education Programme (ACGME - residency) for Pathology training.
KKH is the national training centre for paediatrics pathology for all three residency

2009

programmes in Singapore i.e. NUHS, NHG and SingHealth. NHG also requires KKH to provide the gynae-pathology training as there is no gynae-pathology service available in the group.

Methodology:

1. Identifying and Analysing the Problem

At any one time 6-7 residents could be expected in Histopathology. This will stretch the existing resources at KKH Histopathology way beyond capacity.

 Acquisition of state of art equipment to enhance resident training and analytical capabilities

3. Project Implementation

The renovation was planned in 4 phases to ensure continuation of service. The selection of the best layout was based on 8 criteria and their weightage using a weighted decision matrix. From the table, Layout 3 was chosen as it obtained the highest score.

			Area score					Decision score vs weightage		
	Room created	Criteria	Layout 1	Layout 2	Layout 3	Total points	Weightage (%)	Layout 1	Layout 2	Layout 3
L	3 x Pathologists rooms	Total size (m ²)	24.6	31.2	31.1	86.9	10	2.83	3.59	3.58
2	Trimming room	Total size (m ²)	43.2	28.5	24.6	96.3	20	8.97	5.92	5.11
3	Specimen reception room	Total size(m ²)	0	9.7	8.2	17.9	5	0.00	2.71	2.29
1	FS room	Total size (m ²)	16.1	13.3	24.3	53.7	10	3.00	2.48	4.53
5	Autopsy room	Total size (m ²)	9.1	11.9	12.5	33.5	5	1.36	1.78	1.87
5	Administrative room	Total size (m ²)	23.6	9.3	9.3	42.2	5	2.80	1.10	1.10
			Qualitative score (yes=1, No=0)					Decision score vs weightage		
	Room created	Important features	Layout 1	Layout 2	Layout 3	Total points	Weightage (%)	Layout 1	Layout 2	Layout 3
L	Trimming room	Buffer room for better air containment	0	1	1	2	15	0.00	7.50	7.50
2	Trimming room	Fit in 5 trimming tables	1	1	1	3	5	1.67	1.67	1.67
3	Autopsy room	Secluded area?	0	1	1	2	10	0.00	5.00	5.00
1	Save of space	Space wastage due to creation of corridor	1	0	1	2	10	5.00	0.00	5.00
5	additional room created	Dark room	0	1	1	2	5	0.00	2.50	2.50
						Final score	100	25.62	34.24	<mark>40.14</mark>

Qualitative score Yes = 1 point No= 0 point

The approval of budget to the completion of the project took 13 months over 4 phases without service interruption. The total floor area increased from





Critical Lack of space

Analysis using the fish bone diagram identified space constraint as the main concern. Hence there was an urgent need to expand and upgrade the infrastructure at KKH Histopathology Laboratory to accommodate the ACGME programme.



Microtomy Station can only sit 4 staff

140.5m² to 214.5m². Key additions include:

. Dedicated autopsy room

Results:

- 2. 3 additional pathologist offices cum signing out area
- 3. Additional room space with trimming stations
- 4. Fully equipped trainee room with teaching facilities
- 5. Upgraded air conditioning and exhaust systems to ensure lab safety



Specimen reception area





Dedicated autopsy room



6 microtomes are now able to fit on the bench with orientation that eases the workflow



Dedicated work area for immunohistochemistry

Machine Method Environment

There were other longexisting issues that the lab staff was facing. These issues have to be assessed and considered in the renovation plan. Another fish bone diagram was created to assess the main root causes.

3 additional pathologist rooms

Spacious trimming room

Conclusion:

Renovating a Histopathology laboratory is a significant project that requires careful planning and implementation in the midst of full laboratory operation. Disruption to service delivery must be kept to a minimal level and can be challenging.

The project was successfully completed. There is now a steady stream of residents coming for training. The expected outcome – a centre for academic excellence to facilitate the transfer of expertise to local talents, ultimately improving service quality to the stakeholders.

1. Ministry of Sincere Appreciation to: Facilities Ma

Ministry of Health
 SingHealth and KKH ACGME Office
 Mr Anthony Lim, Ms Teo Lay Teng and Staff of Facilities Management
 DPLM Management and staff especially Lab Safety Officer Ms Logeswary and Chief Med Tech, Peter Lim
 All staff of Histopathology Lab