

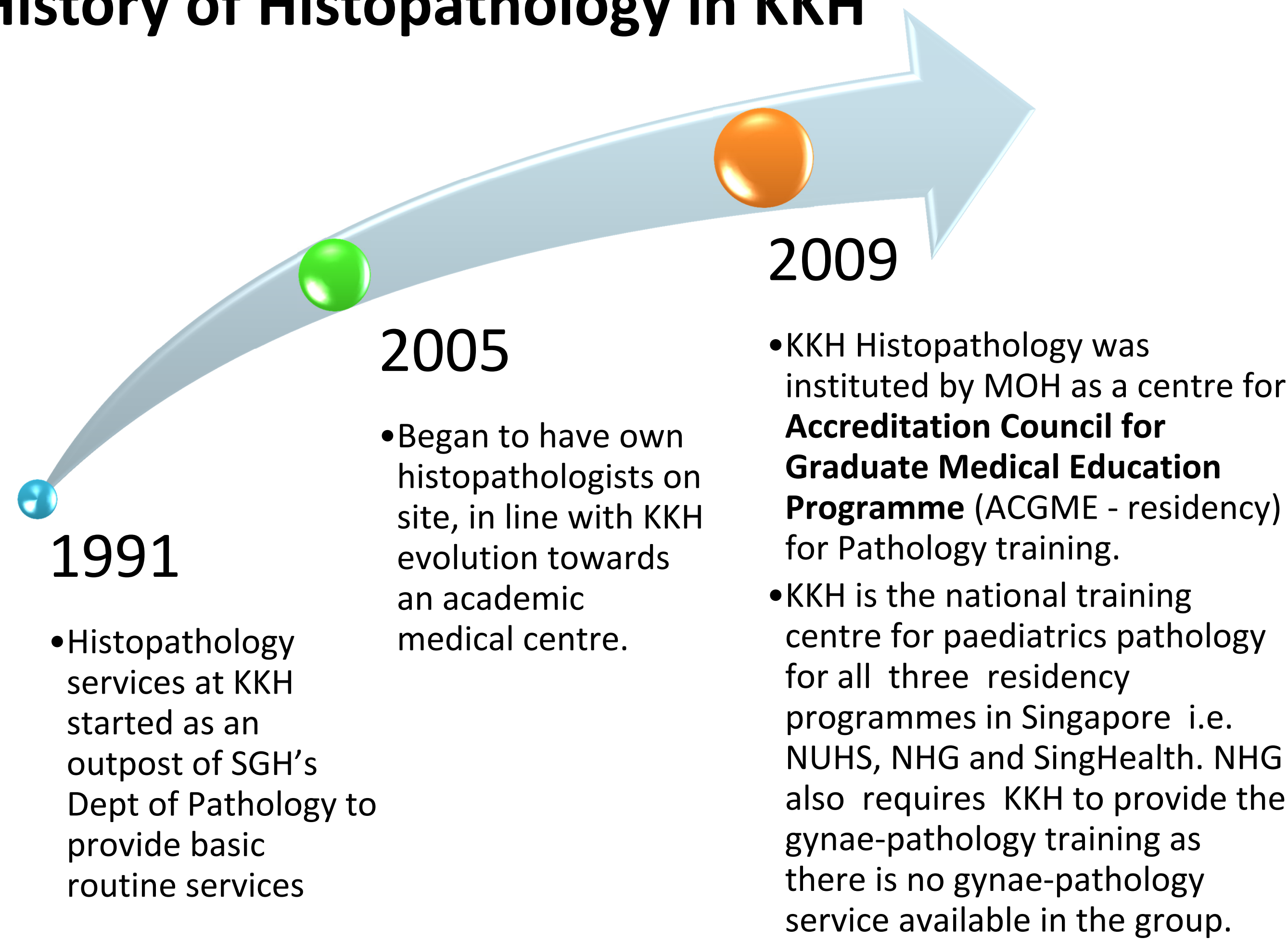


Upgrading of Histopathology Lab to accommodate ACGME Program

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Introduction:

History of Histopathology in KKH



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.

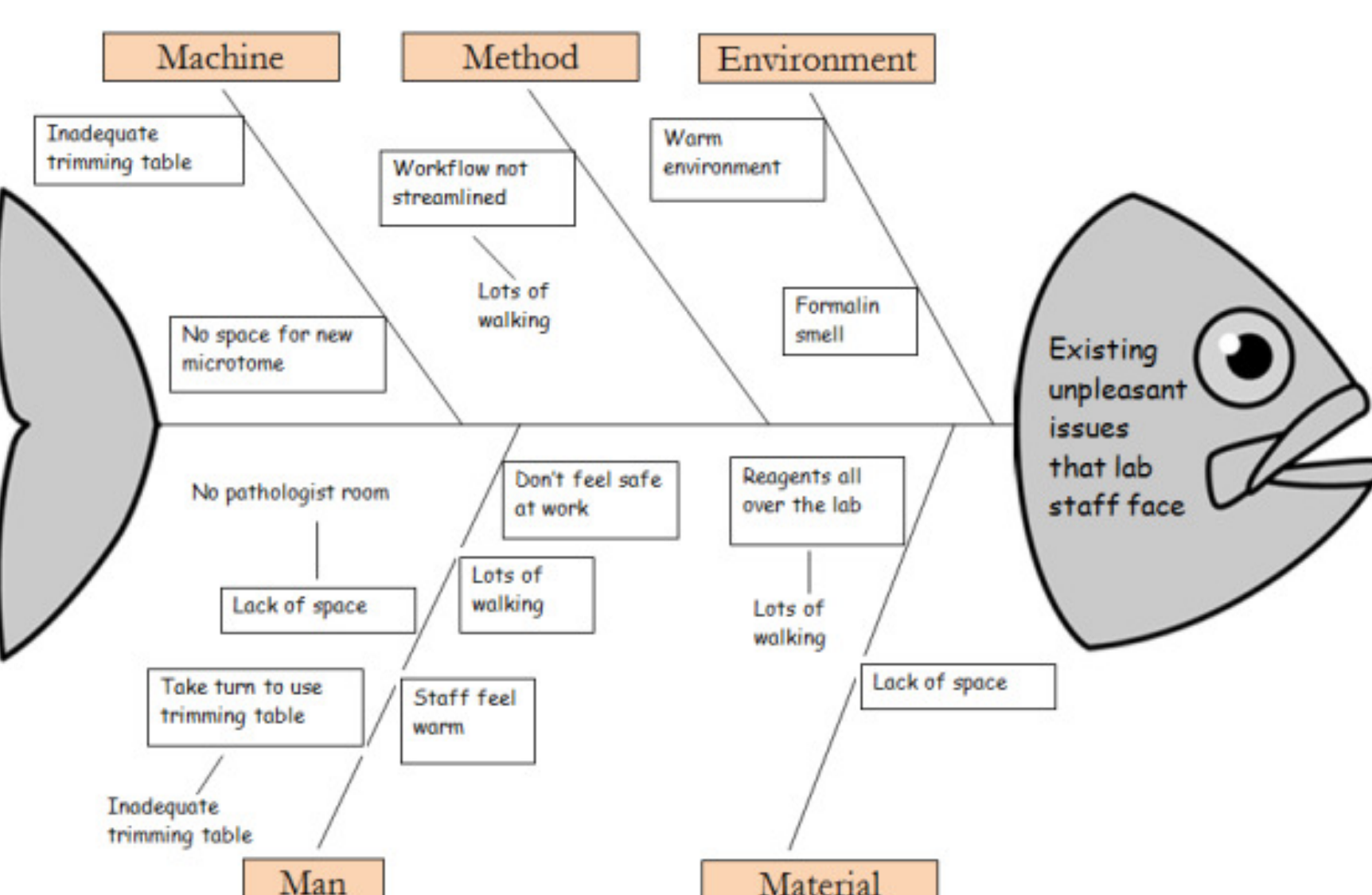
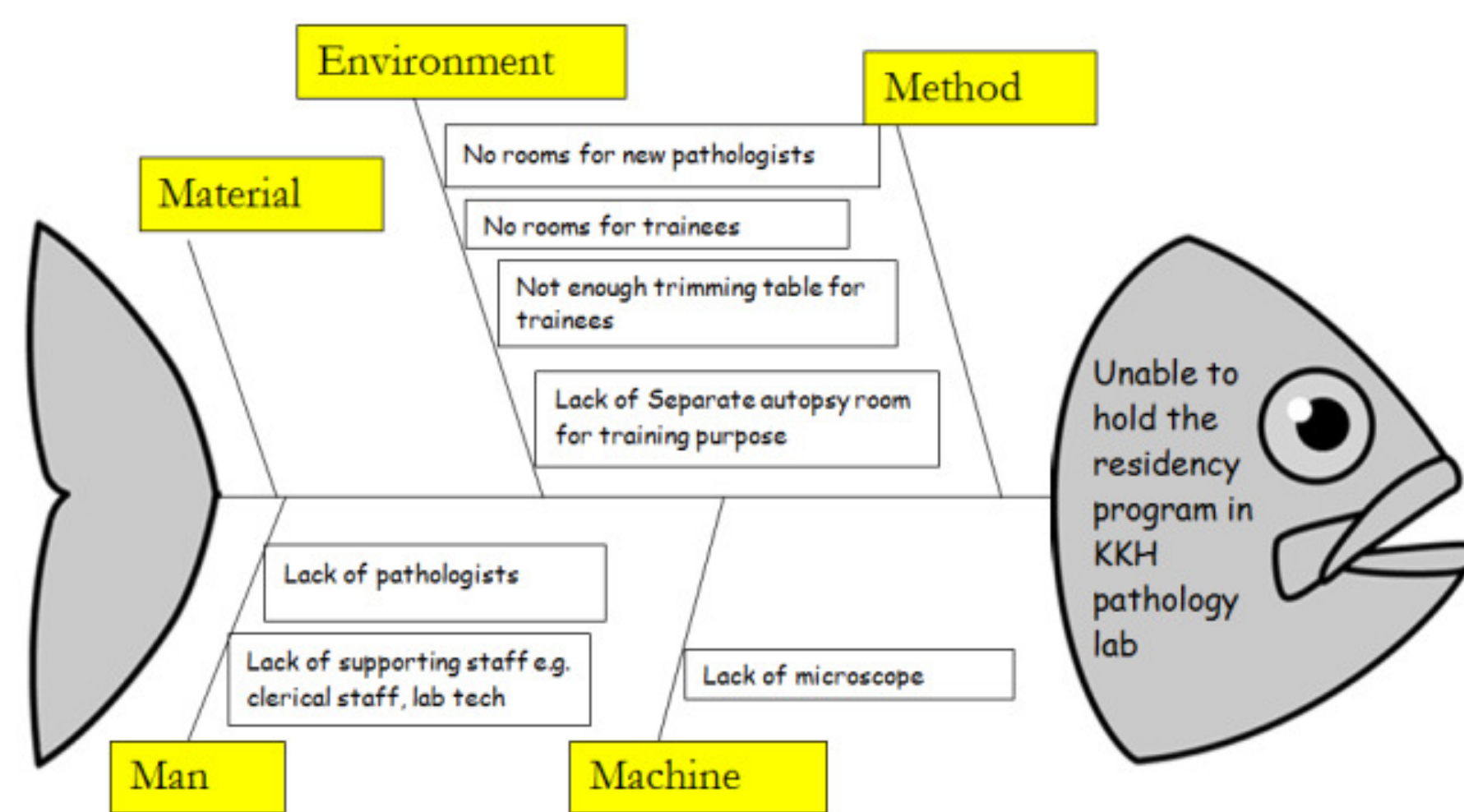


Critical Lack of space



Microtomy Station can only sit 4 staff

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.



There were other long-existing 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.

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:

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

Room created	Criteria	Area score				Total points	Weightage (%)	Decision score vs weightage		
		Layout 1	Layout 2	Layout 3	Layout 1			Layout 2	Layout 3	
1 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	
4 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	
6 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	
1 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	
4 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	40.14

Qualitative score:
 Yes = 1 point
 No = 0 point

Results:

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 140.5m² to 214.5m². Key additions include:

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



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



Specimen reception area



Dedicated autopsy room



3 additional pathologist rooms



Spacious trimming room



Dedicated work area for immunohistochemistry

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.