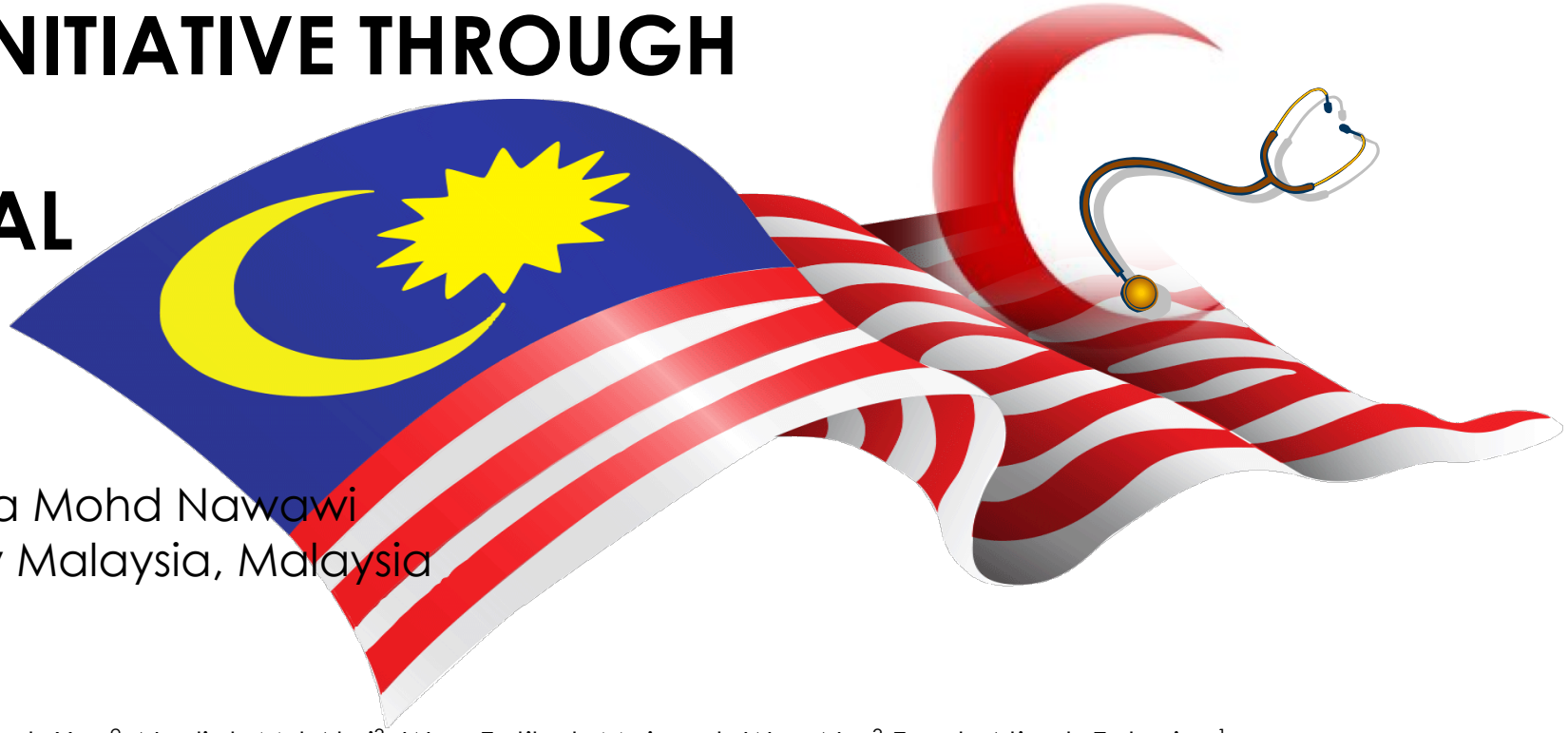
UIA-PHG Seminar 2019, New Zealand Health Design Council Conference 2019, Christchurch, New Zealand
30-31st July 2019.

DELIVERING QUALITY SERVICE THROUGH INNOVATION OF EXISTING HEALTH CLINICS FOR SUSTAINABILITY: A THEORETICAL INITIATIVE THROUGH ARCHITECTURAL DESIGN PROPOSAL



Presented by
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31st July 2019

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Storyline

- Introduction
- Background
- The Question-the issues
- Case studies
- Summary of Findings and Recommendations

Introduction

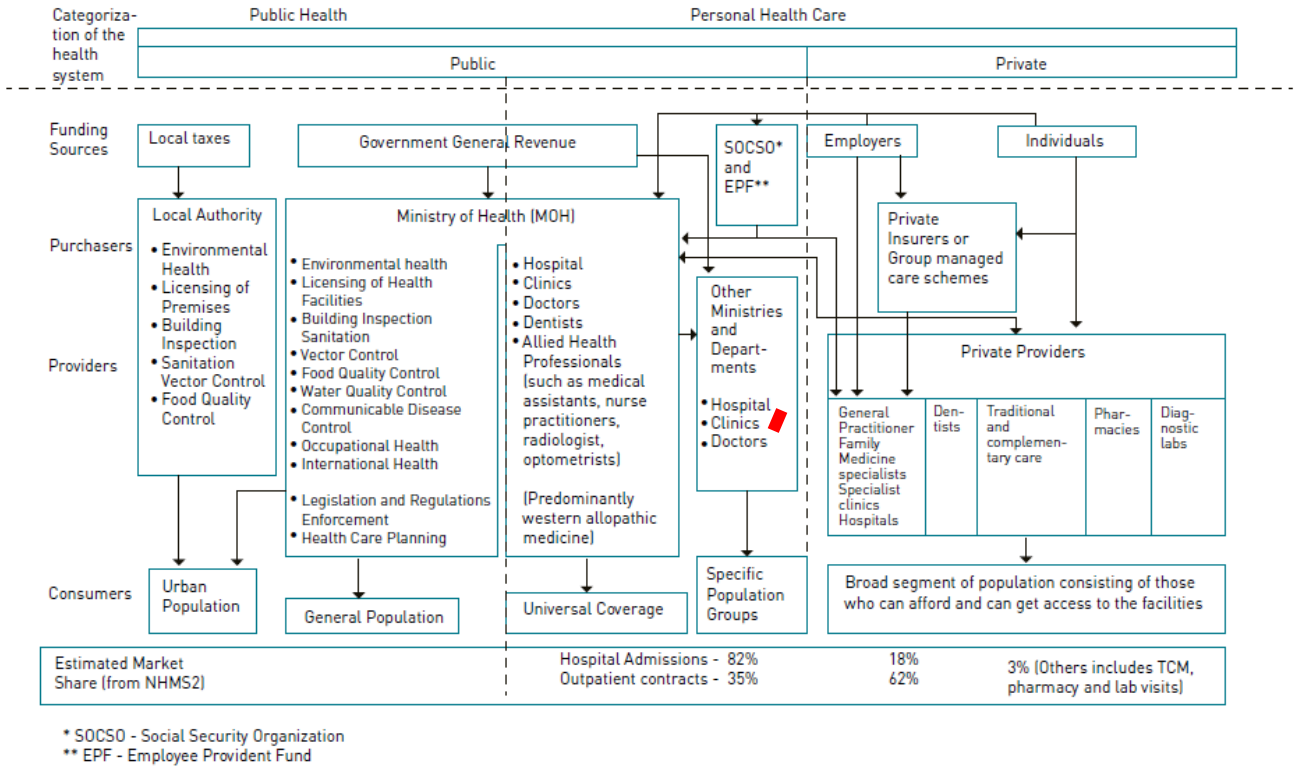
- The perception of QUALITY is relative, and in healthcare, involve many stakeholders and variables.
- The primary health sector, as the safety net for the healthy nation, remain the focal point for all to access healthcare
- Malaysian government improvement in the Quality of Health of Malaysians, is part of 2nd Strategic Thrust of the Midterm Review 2016-2020 by the government focusing on "Improving Wellbeing for All" by 2020, in relating to UN Sustainable Development Goals (SDG) 3.8 , *leaving no one behind*', to achieve universal health coverage – hence -primary health care is the focus.

Introduction

- According to Director General of Health Malaysia, Datuk Dr Noor Hisham Abdullah, in his keynote speech recently at the 6th Asia Pacific Conference on Public Health (APCPH) 2019 on 23 Jul2019), Malaysia has delivered quality care, although the GDP for health is only 4.21% (2016), facilities is under staff, staff are underpaid and facilities as well as services under funded-value based practices.
- Towards meeting part of the Quality of Care, tip top facilities to facilitate care, apart from radicalising access to care, is of utmost important.
- This paper thus aims at addressing the meaning of quality service from architectural facility expectation of the public primary health care so as to remake/replan/redesign /innovate the selected aged facilities to meet prevailing standards within reasonable expectations.

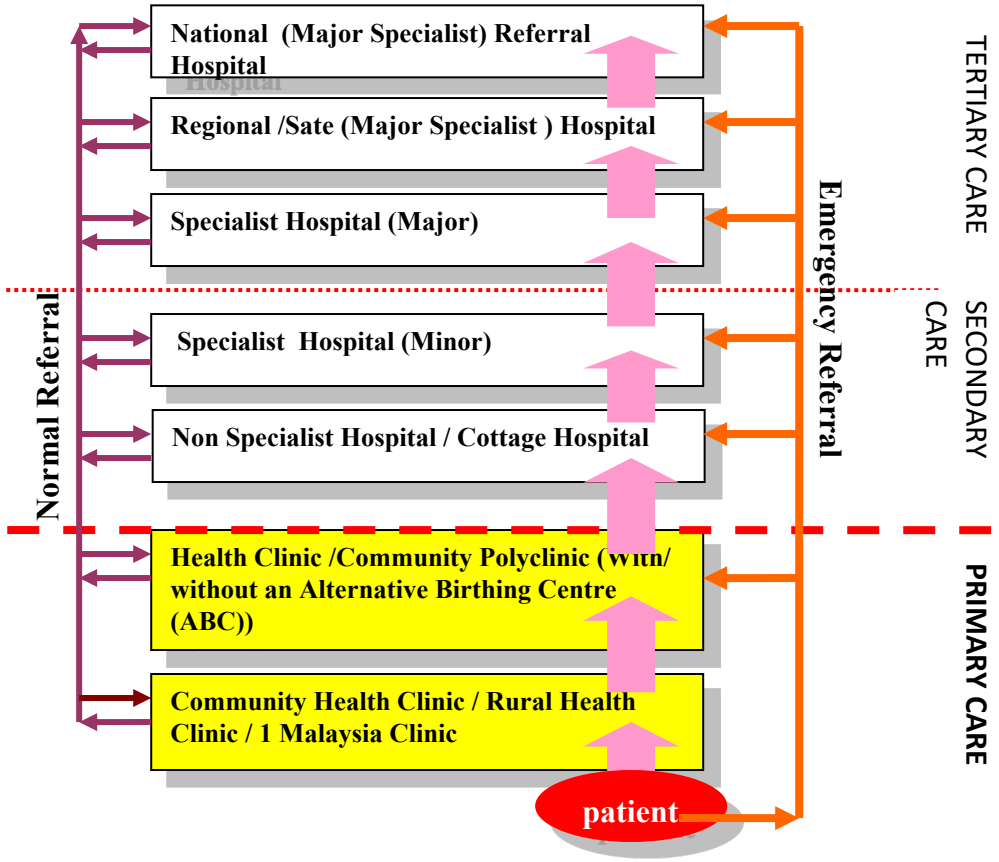
Background

Malaysian healthcare is currently divided into **public and private healthcare system with traditional complementary medicine (TCM) in the background**. While the government is trying its best to integrate them for efficiency and sustainability through managed care, the current practice of alienation still prevail.

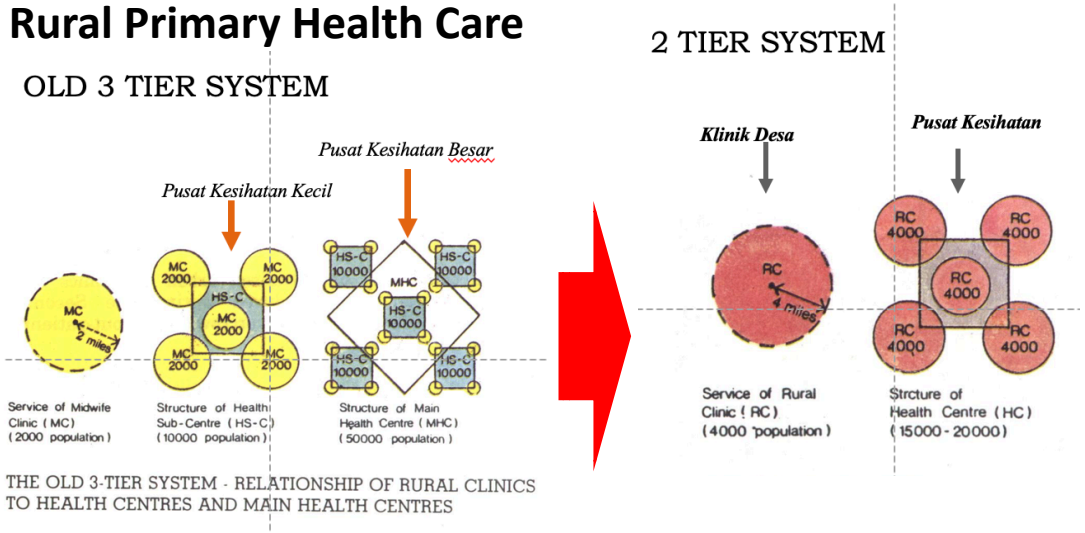


(Source : Malaysia Health System Review, 2013)

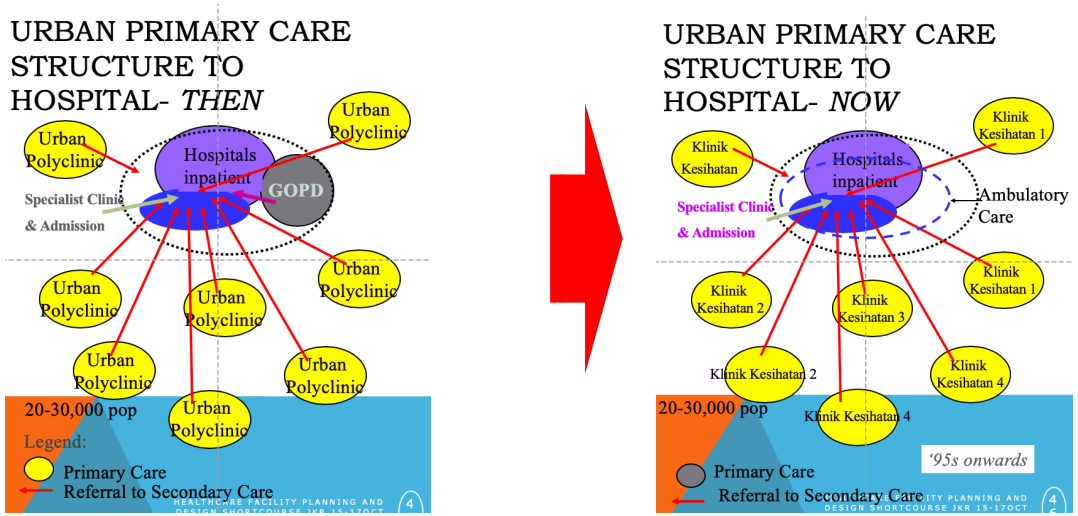
Referral system and Access to Public Health Care in Malaysia



Rural Primary Health Care



Urban Primary Health Care (Health Clinic)



Background

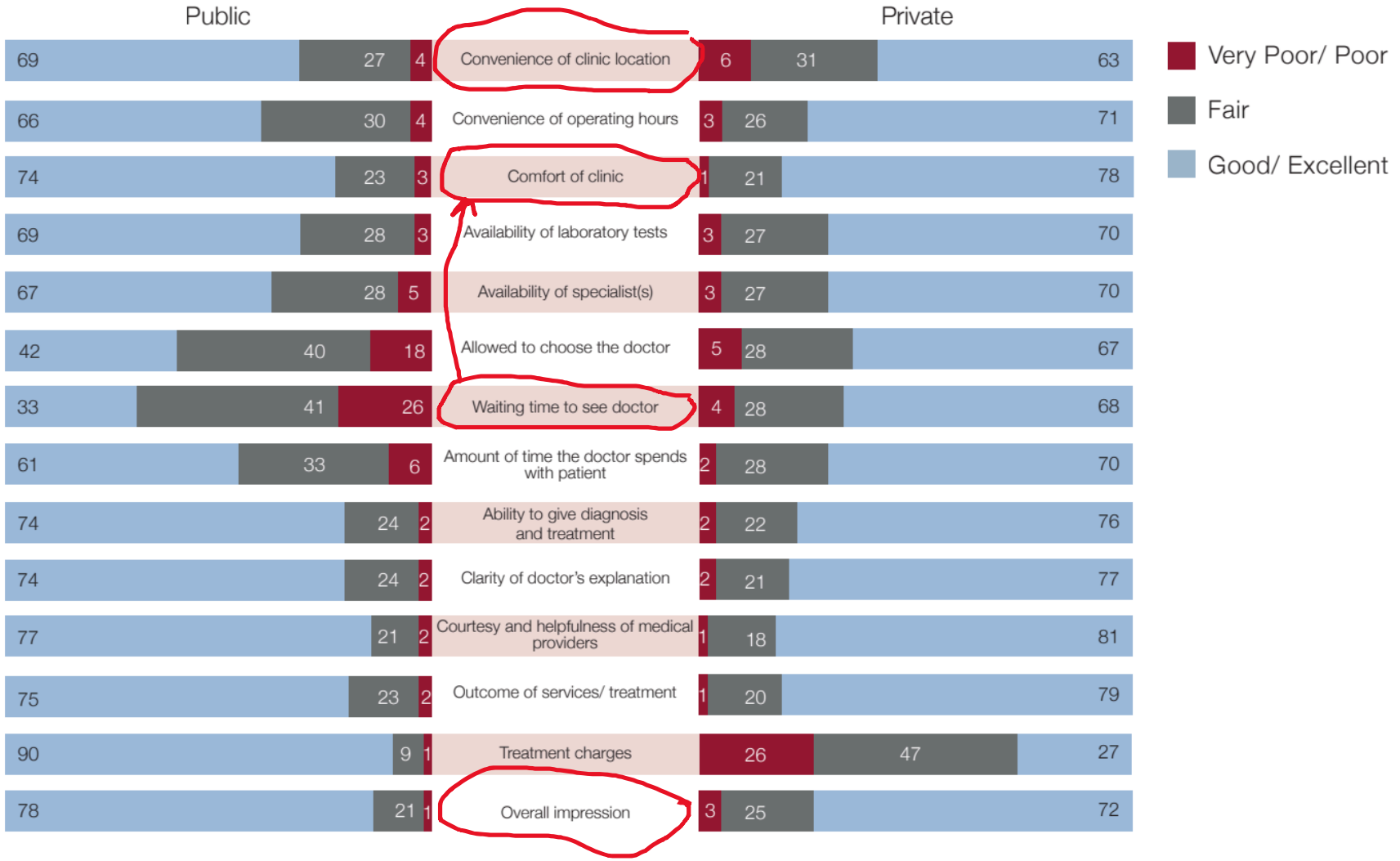
- To date, according to MoH Health Facts (2018),Malaysia has 2881 health clinics from total of 4899 facilities including Dental clinic and 1 Malaysia clinic excluding private sector clinics, for its 32.6 million population, within every 5 km radius.
- The health clinics are of various degree of building age, sizes and designs, the demand for quality care require a review of the facilities and its' ability to improve while functioning depending when they were built and in what state. There are clinics that had existed since the colonial period still in use today. Clinics built immediately after independent is over 40 years old.
- However, more clinics need to be built to the serve the remaining population, both funds and approval process are slow. Existing clinics are aging and require upgrading to meet the new requirements (Aseantoday 2017).

User Satisfaction

Harvard School of Public Health Contextual Analysis of the Malaysian Health System by Chan, T.H (March 2016) reports the following:

- Malaysia's universal, low cost health system is greatly valued by the population.
- Both national surveys, such as the National Health and Morbidity Survey (NHMS), and user exit surveys indicate high levels of satisfaction with both public and private services.
- **However**, there are aspects of the system that people are less satisfied with, including process related quality
  - (such as waiting times,
  - availability of a private room, or choice of doctor) in the public sector,
  - and the cost of healthcare services in the private sector.
- As incomes rise and expectations grow, dissatisfaction with the levels of service quality offered in the government system is likely to increase.

Chan,T.C, (2016) Harvard Study

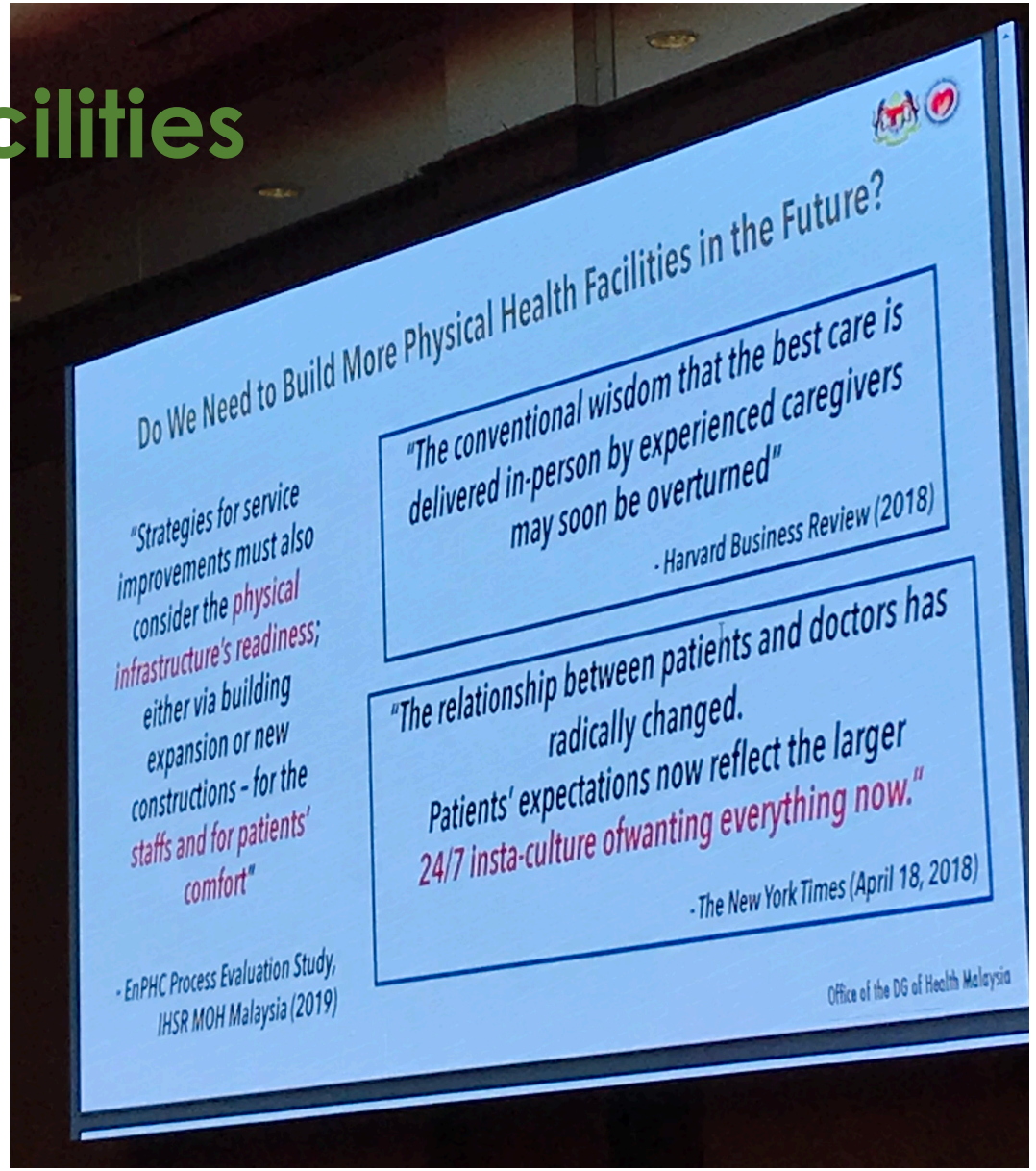


Data Source: National Health & Morbidity Survey 2015

Patient Satisfaction In Relation To the Physical Facilities

Planning for Physical Facilities

- Malaysia is on the verge of preparing the 12th Malaysia plan.
- The 5-year planning by Ministry of Health Malaysia for all facility projects starts both top down and down up in prioritising the list of projects for the country to be built within the 5-year planning period.

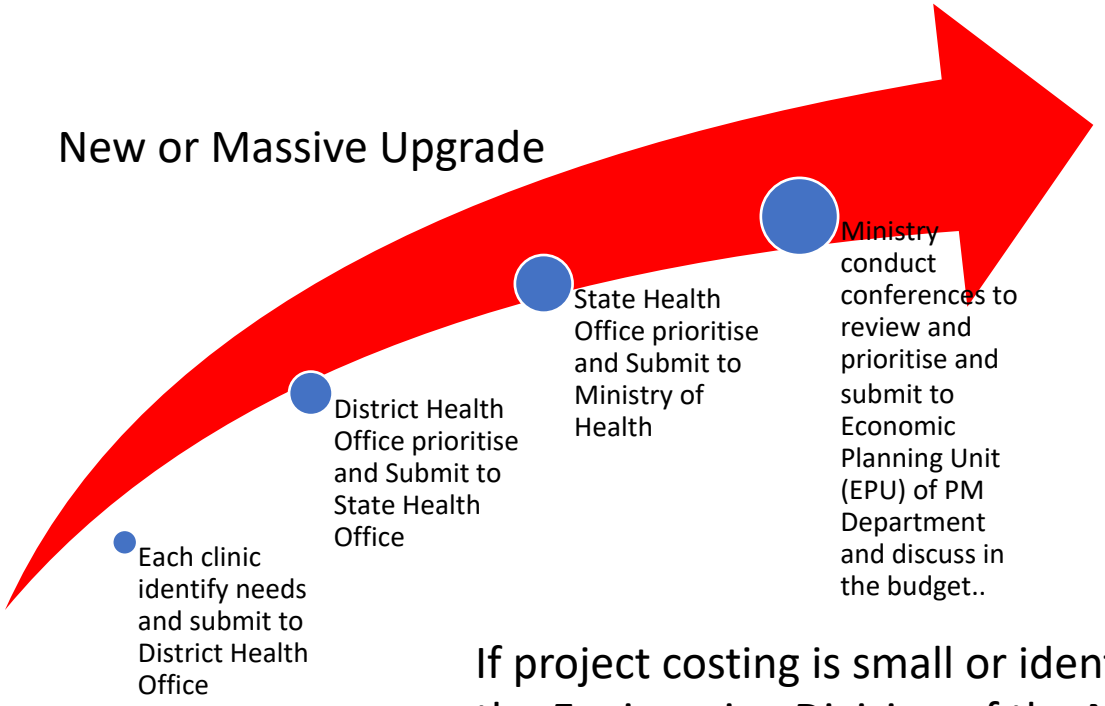


Datok Dr Noor Hisham Abdullah (2019)

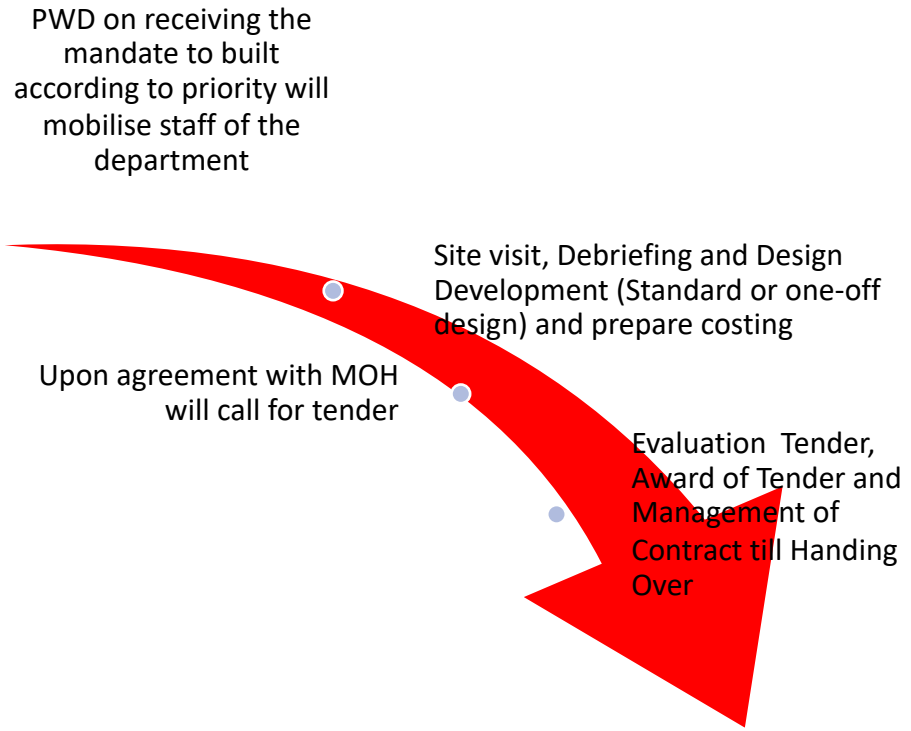
Typical Procurement Project Process – in brief

MoH at Mid Term Review and Final Prioritisation of Physical Projects before Listing in the Malaysia Plan

New or Massive Upgrade



PWD (JKR) in accepting projects within the Malaysia Plan



If project costing is small or identified as maintenance, the Engineering Division of the MOH will undertake the task with the user-client under operational or one-off budget within the MoH.

Background

To hasten the construction of the facility, the government, through MoH and JKR (Public Works Department Malaysia), had worked on several standard templates for all types of healthcare buildings. Each type will require certain land size or acreage depending on the needs, level of care and its geographical location. For **health clinic** there are currently 7 standard types to choose from as follows:

Type Facility	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7
Catchment Population	**> 50,000**	**30,000-50,000**	**20,000-50,000**	**10,000 – 20,000**	**5,000 – 10,000**	**< 5,000**
Total Attendance / Day	> 800	500 - 800	300 - 500	150 - 300	100 - 150	> 50 - 100

Depending on the type and location, a full fledge health clinic will also include essential staff quarters. Each health clinics without staff quarters require a 3 acres site to establish.

Design of the clinics still in use

1960s

(a) The Beetle
(Source: Planning & Dev. Div, MoH)

1970s

FRONT VIEW OF A MAIN HEALTH CENTRE (MANTIN-TYPE)

(b) Mantin Type
(Source: Health Branch, JKR)

1980s

(c) Gulau Type (JKR
(source: Health Branch, JKR)

1970s

FRONT VIEW OF THE POLYCLINIC, KG. DATO' KERAMAT KUALA LUMPUR

(d) Urban Polyclinic – Arau Type
(source: Health Branch, JKR)

1990s (using GOPD plan)

(e) Mak Mandin Type revised to Kajang Type KK3

(f) One off Design (MAA) KK1

(g) Kangar Type KK3

(h) KK2 (Seberang Jaya)

Source: Chan,T.C, (2016) Harvard Public Health Study

PRIMARY HEALTHCARE FACILITY NETWORK

Facility	Service Coverage	Human Resources	Geographic Context	Notes
Health Clinics (KKs); Types 1-7	Wide range of service coverage - from comprehensive child and adult curative and preventive ambulatory care to more basic services, depending on staffing and supporting services. MCH and dental services may be included when these clinics are co-located/combined.	Led by either family medicine specialist, medical officer, or medical assistant	Urban and rural	Can be co-located/combined with a MCH clinic, dental clinic, and/or district hospital. Ranges from large, typically urban, health clinics (Type 1-3) led by a family medicine specialist with supporting services which include pharmacy, laboratory, and radiology support, to smaller health clinics in rural areas which are staffed by medical assistants. Type 4-6 are smaller health clinics, and type 7 is a recently added type representing the smallest health clinics (in some instances, these are upgraded community clinics, where service scope has been expanded).
Community Clinics	Maternal and child health services and basic curative services	Led by staff nurses or community nurses	Rural	
1Malaysia Clinics	Basic curative services	Usually led by medical assistant, but recently medical officers have been posted to these clinics	Urban, to serve the urban poor	Out-of-hours coverage; Rented facilities
Maternal and Child Health Clinics	Maternal and child health	Doctors, midwives and/or nurses	Urban and rural	Can be combined into health clinics
Mobile Clinics	Maternal and child health and basic curative services	Usually led by a medical assistant and/or nursing staff, but may also include medical officers	Remote rural areas; requiring access by boat, 4WD, or helicopter	

The question –the Issues

….overcrowding among the issues

- After all the rigmarole of planning and design throughout the years why are there still fundamentals matters not address in the present set up?
- Existing clinics are the gems for the local populace. Why replace them to faraway places? Isn't that not an idea of accessibility and place continuity? Why move?

August 2014, Sinar at

http://www.sinarharian.com.my/mobile/edisi/selangor-kl/klinik-kesihatan-terlalu-sempit-1.303930

Issue raised and Current solution

No	Among the Issues Raised	Current Solution
1	Population and location of the clinic as per catchment area in the rural area or smaller towns are not static. Although more people migrate to the urban areas for work, they do come back to the hometown during holidays intermittently	Upgrade the clinic according to priority. According to scope and scale of the project and RM – clinic improvise itself using operating fund; or apply for upgrading under engineering unit of the MoH to manage the renovation; or JKR/PWD do undertake the project
2	Land are scarce and expensive in the urban centres	MoH rent or buy appropriate shop-lots within the new catchment as the health clinic
3	Existing clinics especially in the urban areas are not able to cope with the growing attendance to the clinic from people not from the catchment area but new adjacent areas without their own clinic	Upgrade the clinic according to priority. According to scope and scale of the project and RM – clinic improvise itself using operating fund; or apply for upgrading under engineering unit of the MoH to manage the renovation; or JKR/PWD do undertake the project ; or built totally new clinic after site is found
4	Aged clinic must keep up with new clinics in terms of its clinical services and in meeting with the new requirements of the ministry	Some selected clinics are maintained and upgrade its accessibility, comfort , space, building services and circulation pattern
5	Clinic operating hours is limiting	MoH had extended operational hours from 6pm to 10pm at selected clinics

General of Purpose of Upgrading

As stated in the project briefs from the Ministry of Health Malaysia (MBOR –Gombak Setia, Redang, Pangkor, other),Generally the provision of a health clinic are as follows:

(i) to meet the demand for health services that is gradually on the rise due to population increase as well as to provide a better quality of health care services by the Ministry of Health Malaysia

(ii) New health clinics is built to replace existing old clinics for the purpose of providing comfort to the existing client-patients a good experience of both interior and exterior while getting the services from the clinic.

(iii) it is also to redistribute existing and projected workload;

(iv) New health clinic are able to provide appropriate and safe workspace for the health staff so that they can carry out their duties with quality and efficiency in line with government's intent in improving the quality of healthcare services.

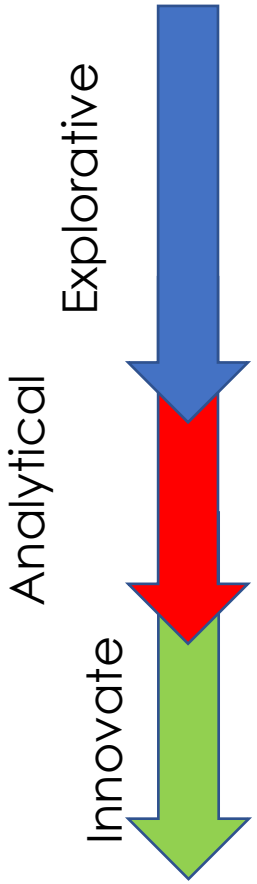
(v) With the provision of a new health clinic, everyone is accessible to equitable quality healthcare with ease and hence will enable to empower individuals to achieve and sustain better health that will assist them to enjoy a productive socio-economy opportunities.

Methodology

A qualitative research approach were adopted using case studies with literature review on background, observation, work experiences, case and random interviews at selected clinics

Indicative POE, and other adaptive method where relevant

Issues raised upon own experiences and observations as users



Investigate by exploring available literature

Document data and project experiences

Conduct selected case studies - POE, Literature search, Interview and Observation as User patients and visitors

Analyse the data through triangulation

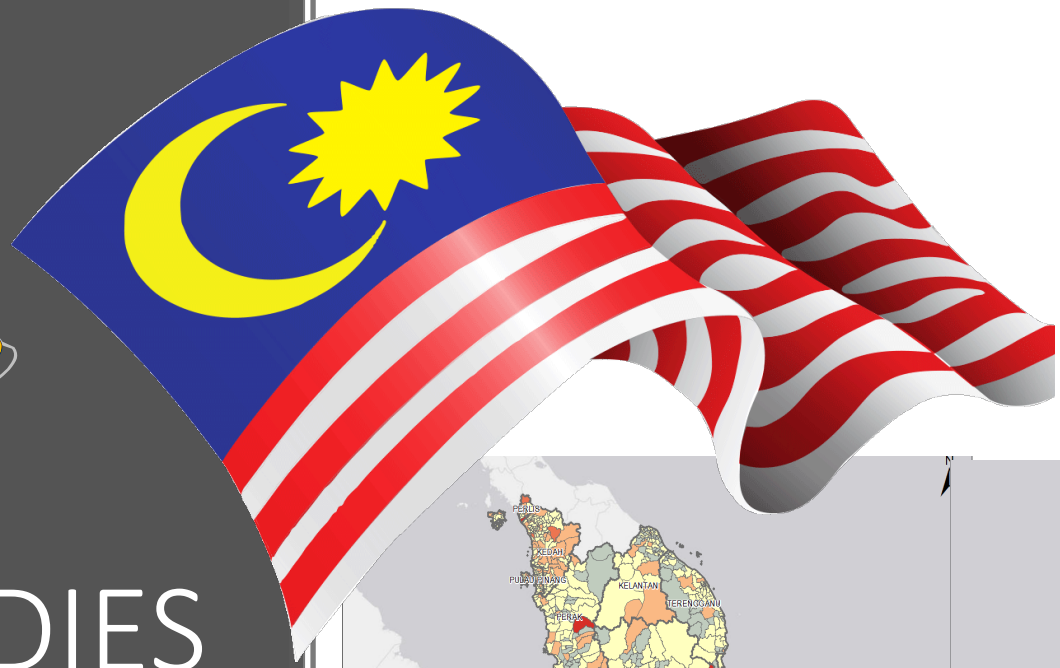
List findings – tangible and non tangible

Select case studies to redesign clinic based on the findings as test

CASE STUDIES

JKR EXPERIENCES –the island and urban health clinics

Selangor Clinics – Kelana Jaya Health Clinic



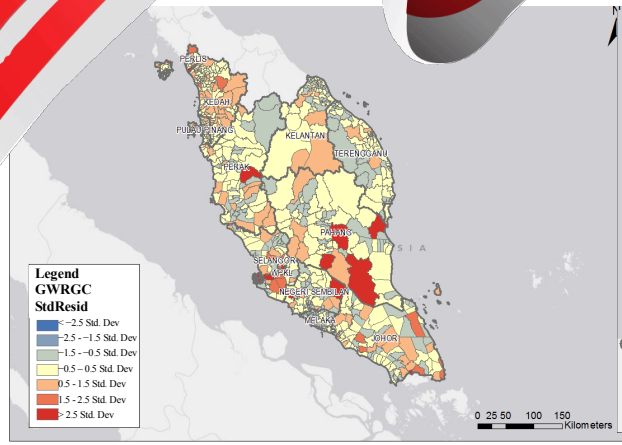


Figure 4. Public health clinics density in relation to population size by sub-district in Peninsular Malaysia.

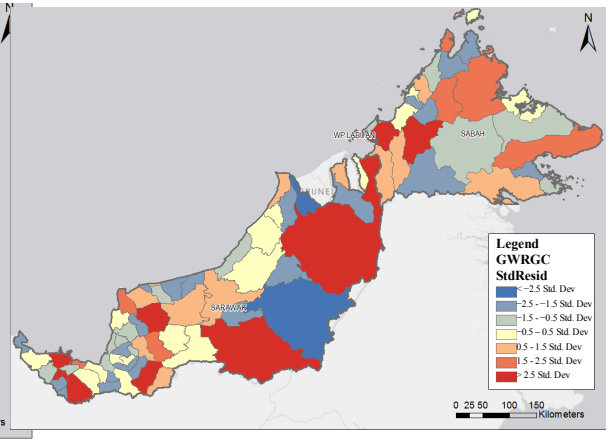
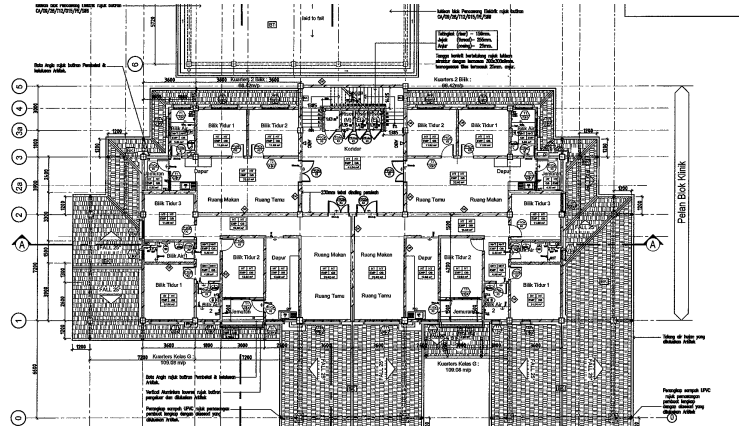


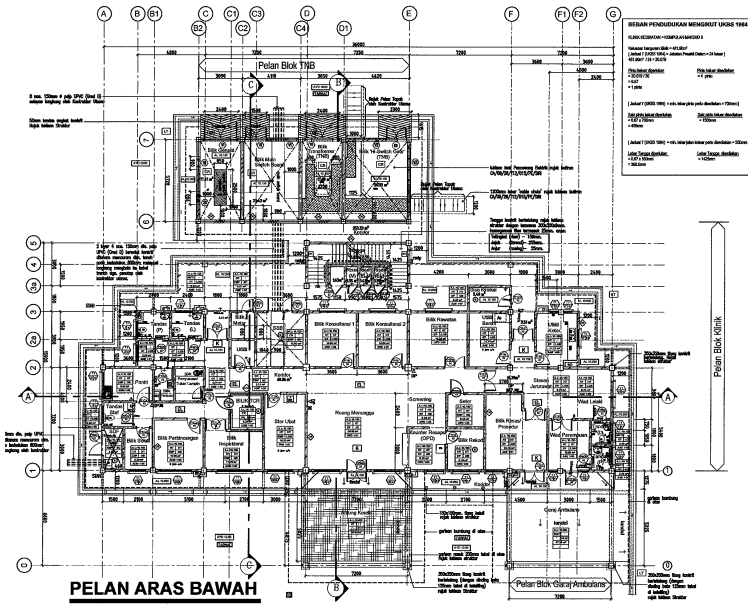
Figure 5. Public health clinics density in relation to population size by sub-district in Sabah and Sarawak.

Case studies 1-Island Clinics

Name	Pulau Pangkor Perak	Pulai Redang, Terengganu
Site Location		  
Existing Site	Not to far from existing site	In the interior of the island.
New Site	Former quarters site.	New site near jetty.
Justification	The old clinic was formerly a cottage hospital built in 1989. The new clinic is built on 3 levels with a sick bay..	Replace old clinic at different site but the same island accessible by boat and island transport. Old clinic site is replaced with the staff quarters as requested
Analysis	The design is new to suit the requirements of the site by the sea with sicj bays and the new clinical demands	The design is new to suit the requirements of the site by the sea and the new clinical demands
Findings	The new clinic although at a new site still remain on the island within reach of the population	The clinic is still on the island and near to the former location and thus able to maintain serving the catchment

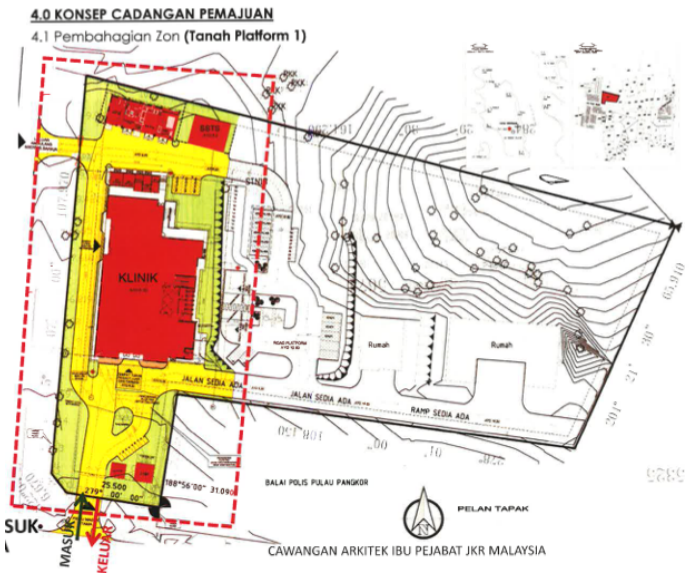
Rendang Island Health Clinic

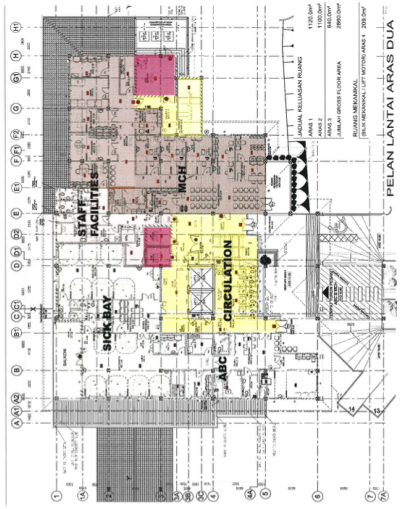


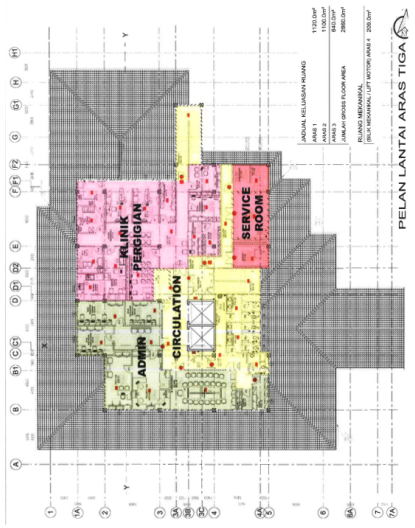


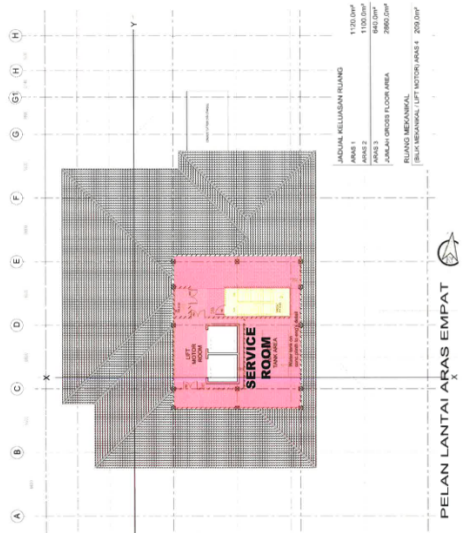
Source : Courtesy of JKR Malaysia for Educational Purposes Only.

Pangkor Island Health Clinic



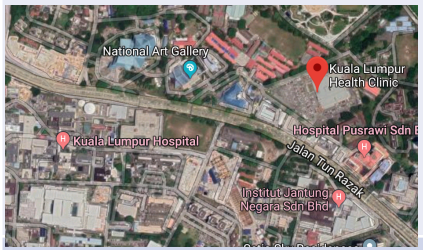
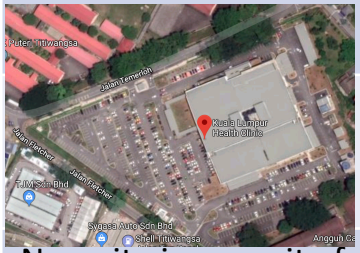




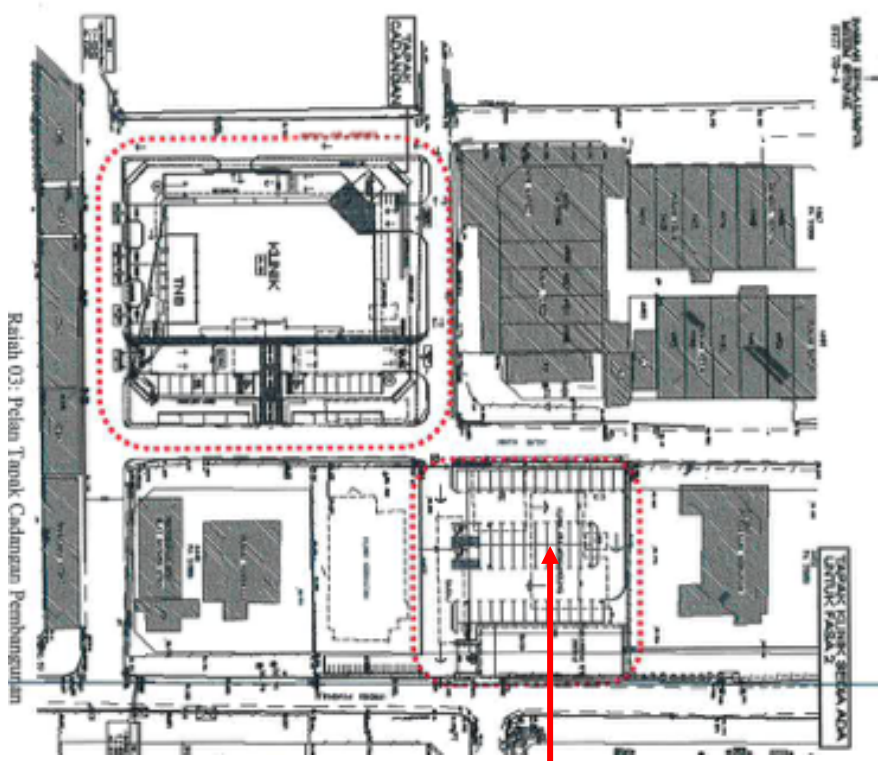


Source : Courtesy of JKR Malaysia for Educational Purposes Only.

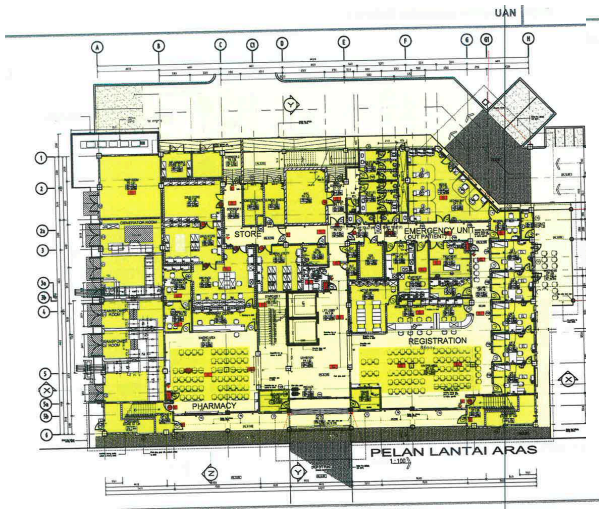
Case Studies 2 – Urban Health Clinics

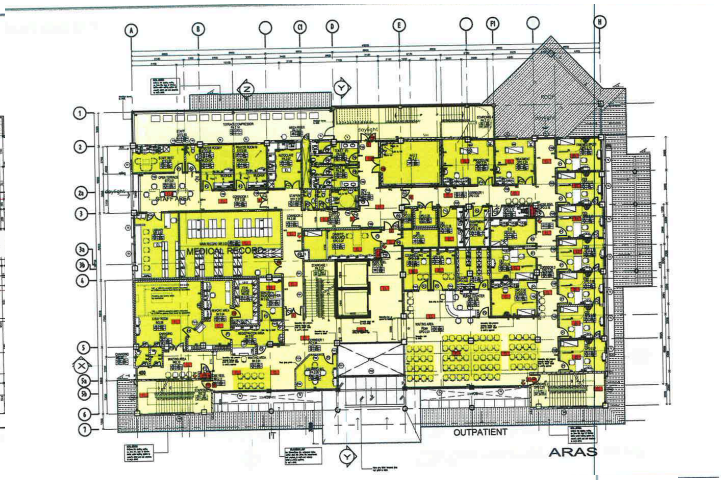
Name of Health Clinic	Gombak Setia	Kuala Lumpur (HKL)	Tanglin , Kuala Lumpur
Elevation			
Site Location			
Existing Site	Next to the new site. Old site to be parking space for the new clinic	Allow expansion of the hospital	On site
New Site	Next		Not relevant
Justification	The old clinic was built in 1966 with currently 435 attendances per day	New site is opposite former site across the road i.e. nearby. GOPD - primary care clinic to be where the catchment are	n.a
Analysis	The clinic is one-off/special design based on type 3 for 500 attendances.	Completely new environment with own parking and access but nearby former existing site for referral	Upgraded with universal access, air conditioned and new facilities for comfort
Findings	The clinic is at the vicinity of the old site and thus sustain the catchment.	The clinic is at the vicinity and accessibility is totally separated. Location still served the catchment.	Possible to maintain the clinic onsite if spaces are available and services can be decanted for a while. Catchment is sustained

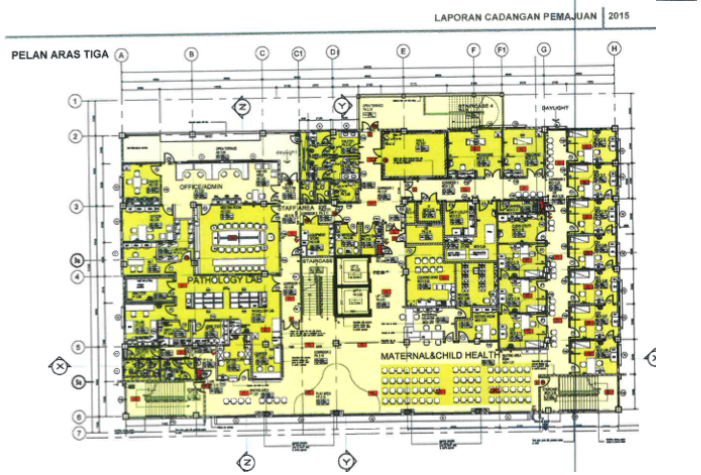
Gombak Setia Health Clinic
–innovate to fit site



Existing site







Source : Courtesy of JKR Malaysia for Educational Purposes Only.

Kelana Jaya Health Clinic (Selangor)

Kelana Jaya is in the state of Selangor with the most population due to urban migration and foreign migration with a population of 6.7 million (2018).
The KJ clinic served is a TYPE 2 Clinic but housed in a type 3 building design with the following details:
Upstairs - Family Health Specialist cum person in charge administrative office; and Dental Clinic;
Downstairs – Maternal and Child Health Clinic, Outpatient Dept, Pharmacy, Clinical Lab, X ray Unit and Emergency Unit.
As type 2, KJ clinic should have the following:
Rehab Unit, Infectious Disease Clinic, Mental Health Wellness Centre, Geriatric Unit.

Kelana Jaya Health Clinic

Image 4.2.3-1 Ground floor layout of KK Kelana Jaya

Source: Farah Atiqah Zakariya (2019)

Image 4.2-6 Patient/visitor waiting area at Mother & Child section

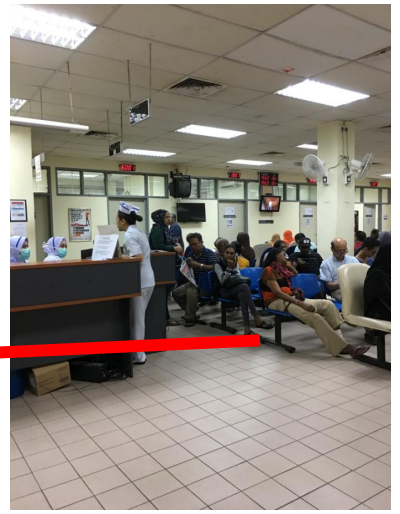


Image 4.2-7 Outpatient waiting area

Image 4.2-8 Outpatient Registration Counter

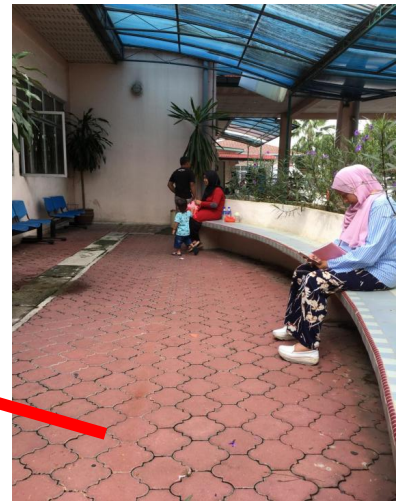
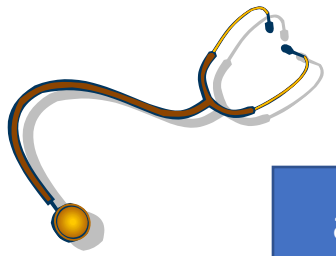
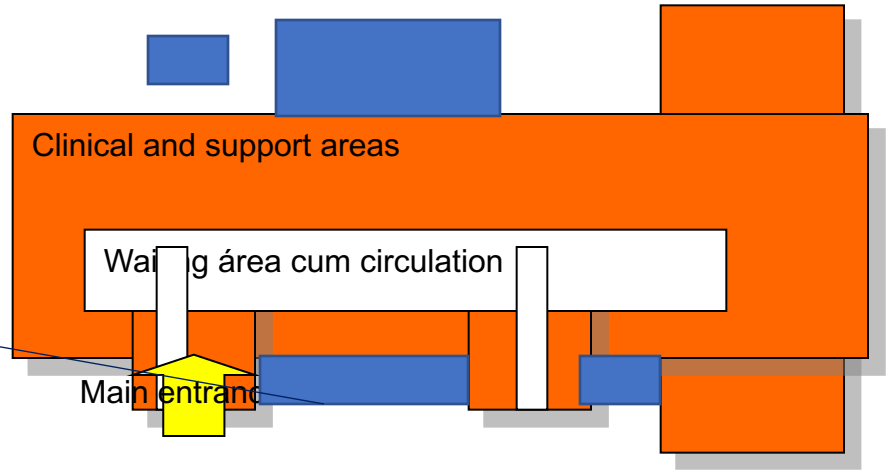


Image 4.2-9 Outdorr waiting space

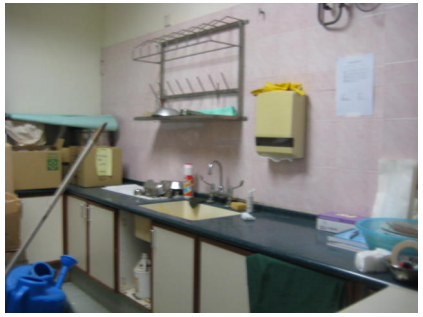
OBSERVATIONS

External Waiting Area



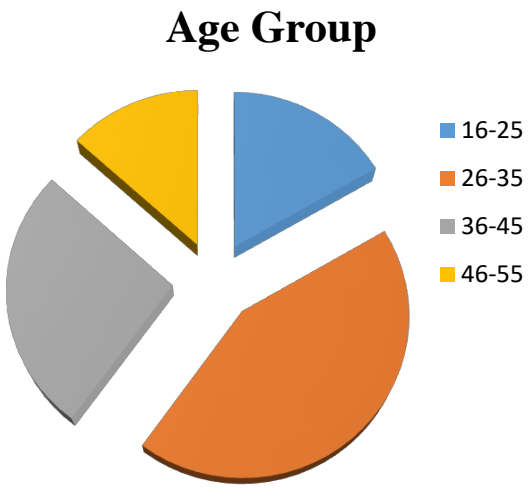


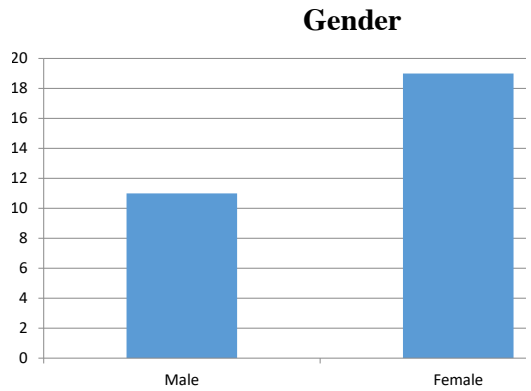
More.. OBSERVATIONS



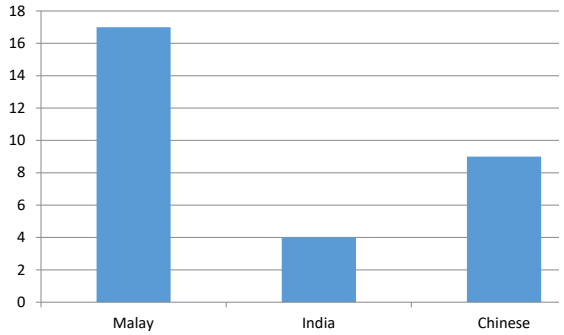
Post Occupancy Evaluation

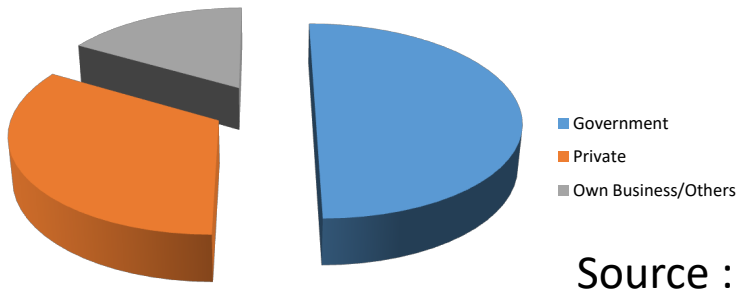
Unstructured Questionnaire was conducted mid 2019 and these are some of the findings from the User-Clients :





Patient's Profile





Feedback by user clients

Data is not available as yet

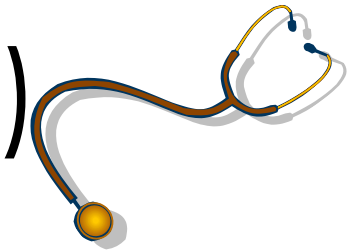
Source : Farah Atiqa Zakariya (2019)

INTERVIEWS

- What are the additions ?
- why?

Pharmacist Rooms

Findings (among others..)



- Change of use---Cleaners Room to Server Room due to IT
- Additional Pharmacy Store for Drugs due to change of supply and procurement system
- Additional treatment area for emergency due to policy change
- Additional lab space – inadequate space
- others

Analysis and synthesis of the existing physical spaces by observation, experience and learning from case studies (draft)

Analysis

i. Weekly attendance although spaced for different ailments are not adequate in the morning but spaced out at noon

ii. Observed and experience no privacy in the treatment used, except for mobile curtains, when now treatment room is also used as emergency room for all ailments, no separation for gender, storage and access from both sides – waiting room inside and ambulance on the other site- due to change of policies on older health clinics

iii. Circulation, toilets and waiting areas are not adequate for people with disability as the design is the older design

iv. External area is hot due to fully tarmac area and ease of access for clinic vehicles, patient drop off and emergencies

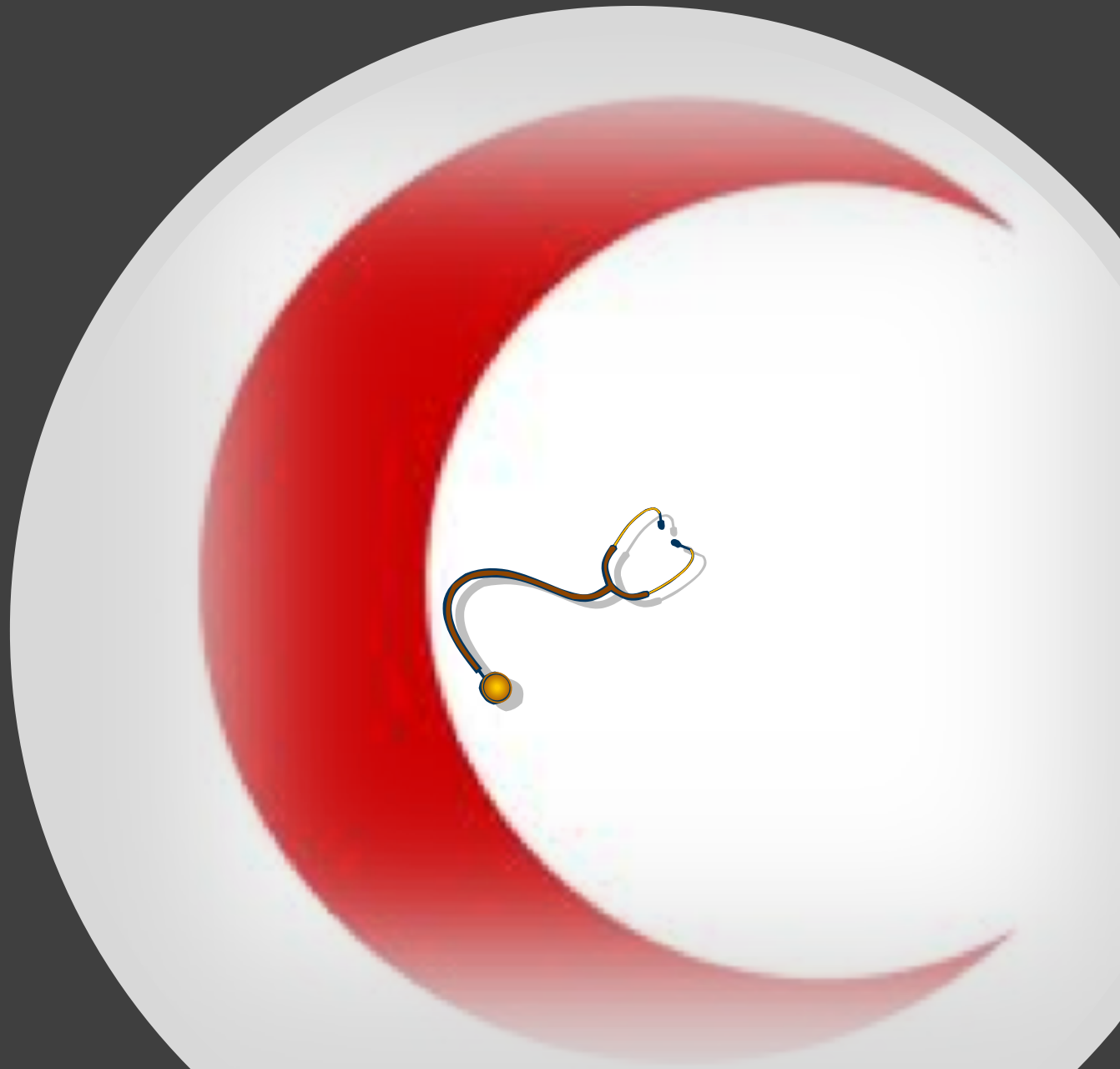
v. More….

Synthesis

- Similar to other projects, for KJ clinic to upgrade,require
  - Purchase of adjacent parking space and linked to current site
  - Either build new at the other site or leave OPD her and Maternal, New born and Child Health to the new site or Moved administrative area and outdoor and new activities e.g, school health, rehabilitation to other site.
- To provide more waiting area with a view, some to the rooms lining the main entrance has to be relocate to to one site Clinical spaces occupy accessible existing spaces with ease and better wayfinding.
- More…….

Health Clinic at place

Summary of Findings and Recommendations

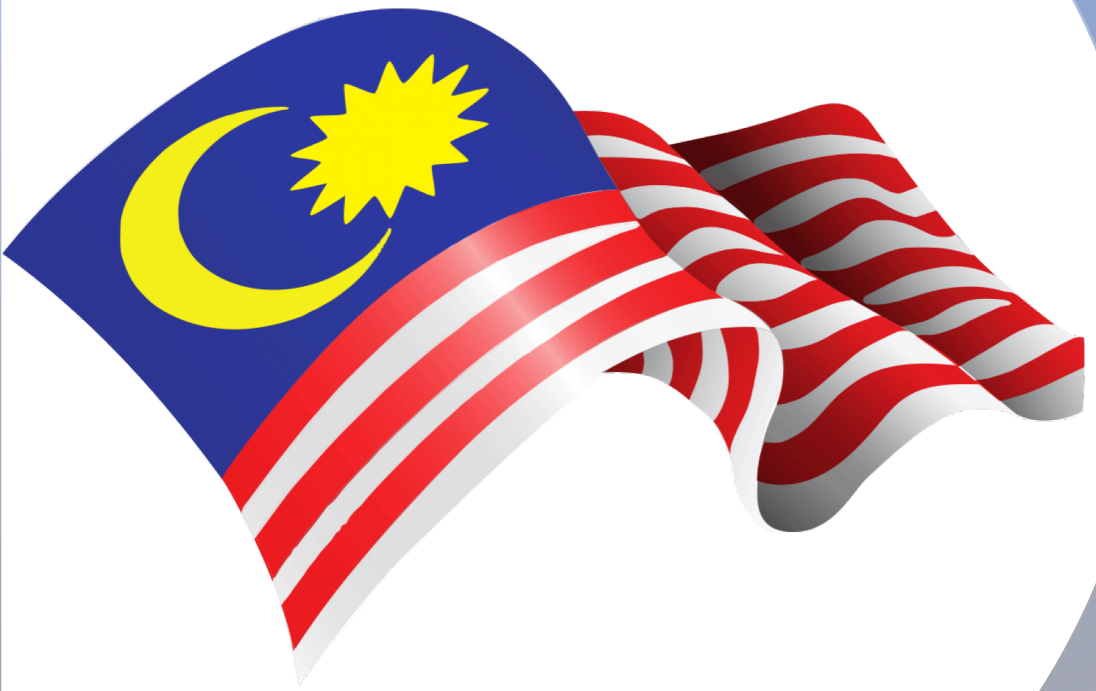


Summary of Findings and Recommendations

- Apart from the solutions listed above, findings showed that whatever types of clinic initially designed and provided for, **standard or one-off designs**, the growing needs will shape its growth and be unique in itself. No two clinics are ever the same due to location, time, culture, catchment population and behaviour of the users;
- Health professionals in the MoH as client and user-clients (staff), should continue to be trained and be aware of the needs to formulate detail project medical briefs to local needs and the vision of the future (master plan);
- Allow feedback from user-clients (staff, patient and accompanying relatives) not only on the services but the facilities as well as the environment for quality of care

Summary of Findings and Recommendations

- With the new requirements from adapting of ICT to new service requirements that require assignment of spaces, accommodating growth, new standard operating procedures and other needs, FLEXIBILITY to design without the need to decant can be embedded;
- Focus on the needs of the catchment population to locate the facility. Any site can be designed to needs and not necessary to adopt ONLY standard design.
- A review of process for better input by architects is required on what seem to be termed as ‘maintenance work’ or ‘small jobs’ in building by either Engineering Division or private contractors issued direct by person in charge. This is to ensure, works done are not abortive or detrimental to safety, long term planning and quality care.
- Towards Quality Care, a comprehensive effort by all should be made so that though the facility is updated, without the will to change the culture for the better, nothing will improve.



tēnā koutou

Thank you for listening

References

- T. H. Chan, Malaysia Health System Research (MHSR) Volume 1- Contextual Analysis of the Malaysian Health System Technical Report, March 2016;
- Keynote Speech by Datuk Dr Noor Hisham Abdullah, Director General of Health at the 6th Asia Pacific Conference in Public Health -23rd July 2019, Penang, Malaysia.
- Farah Atiqah Zakariya (2019)," " KAED, IUM, (draft - unpublished)
- Ministry of Health Malaysia, Medical Brief of Requirements –KK 3 Gombak Setia "special design" ;
- JKR, Laporan Cadangan Pemajuan : Permohonan Kebenaran Merancang Secara Rundingan Di Bawah Seksyen 20A,Akta Perancang Bandar dan Desa 1976 (Akta 172) Bagi Cadangan Pemajuan Membina & Menyiapkan Klinik Kesihatan Jenis 4, Pulau Pangkor, Perak, Bahagian Rekabentuk Fasiliti Kesihatan 2, Cawangan Arkitek, Ibu Pejabat JKR Malaysia.
- JKR , Laporan Cadangan Pemajuan : Bagi Cadangan Pemajuan Membina & Menyiapkan Klinik Kesihatan Jenis 4, Pulau Redang, Terengganu, Bahagian Rekabentuk Fasiliti Kesihatan 2, Cawangan Arkitek, Ibu Pejabat JKR Malaysia.
- JKR , Laporan Cadangan Pemajuan : Bagi Cadangan Pemajuan Membina & Menyiapkan Klinik Kesihatan Jenis 3, Gombak Setia, Selangor, Bahagian Rekabentuk Fasiliti Kesihatan 2, Cawangan Arkitek, Ibu Pejabat JKR Malaysia.
- Asean Today, 'The big healthcare issues that Malaysia and Singapore need to address', at The big healthcare issues that Malaysia and Singapore need to address | ASEAN Today, at https://www.aseantoday.com/2017/01/the-big-healthcare-issues-that-malaysia-and-singapore-need-to-address/
- H. Hazrin, Y. Fadhli, A. Tahir, J. Safurah, M. N. Kamaliah, M. Y. Noraini, "Spatial patterns of health clinic in Malaysia", Vol.5, No.12, 2104-2109 (2013) Health at http://dx.doi.org/10.42 36/health.2013.512287 *(19) (PDF) Spatial patterns of health clinic in Malaysia*. Available from: https://www.researchgate.net/publication/271286644_Spatial_patterns_of_health_clinic_in_Malaysia [accessed Jul 31 2019].
- Sinar, August 2014,