

# Sabah Mobile Endoscopic Services, Easy Access for Everyone



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## BACKGROUND & AIM

### Sabah

- 2nd largest state in Malaysia (Area: 73904 KM<sup>2</sup>)
- Population up to 3.83 Millions, Consists of 30 ethnic groups
- 25.3% of the populations living below the national poverty line
- Difficult access to basic healthcare service due to financial issue, distance and health literacy
- Started mobile endoscopic service with system, "Karl Storz" TELEPACK since 2014 to expand endoscopic service to rural district areas.



## METHODS

- Mobile endoscopic system - "Karl Storz" TELEPACK System comprising of Monitor, LED, light source, camera control unit which compatible to esophagoduodenoscope and colonoscope system
- Team consists of one specialist, two medical offers and two to three staffs or medical assistants from endoscopy team
- Monthly visit to 4 district hospital – Hospital Beaufort, Hospital Ranau and Hospital Kudat since 2014. Subsequently, service expanded to Hospital Kota Marudu since 2019
- Decisions for service planning based on – readiness of facilities, geographical coverage and population
- Able to provide endoscopic services to diagnose gastrointestinal disease such as Helicobacter Pylori gastritis, Gastric adenocarcinoma, Barrett's esophagitis, Colorectal carcinoma, colon polyps etc.

Hospital	Population (est.)
H Kuala Penyu	24,282
H Beaufort	84,987
H Sipitang	44,517
H Tuaran	133,551
H Ranau	121,410
H Kota Belud	117,363
H Kudat	109,269
H Kota Marudu	84,987

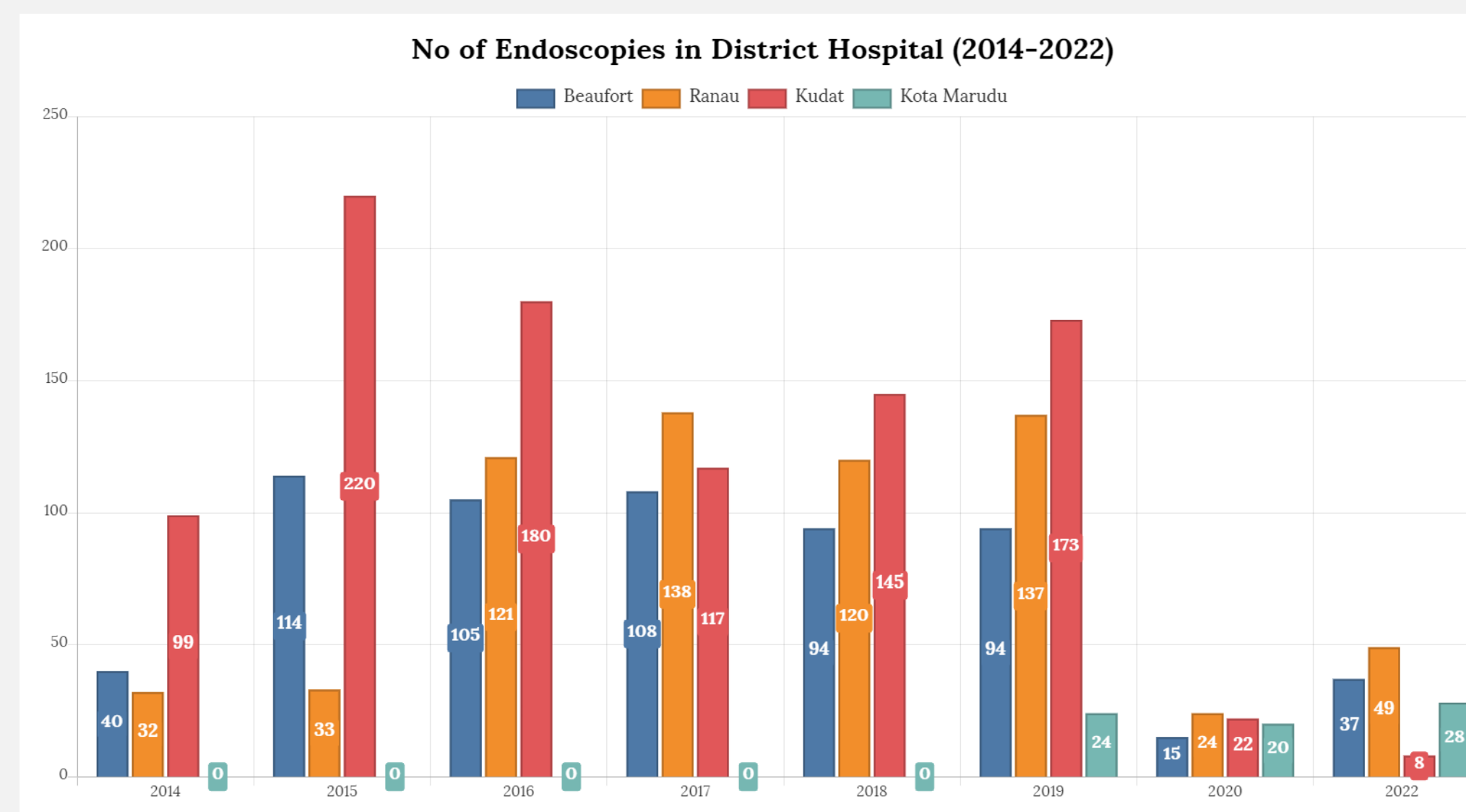
Table 1: Population in each district hospitals.



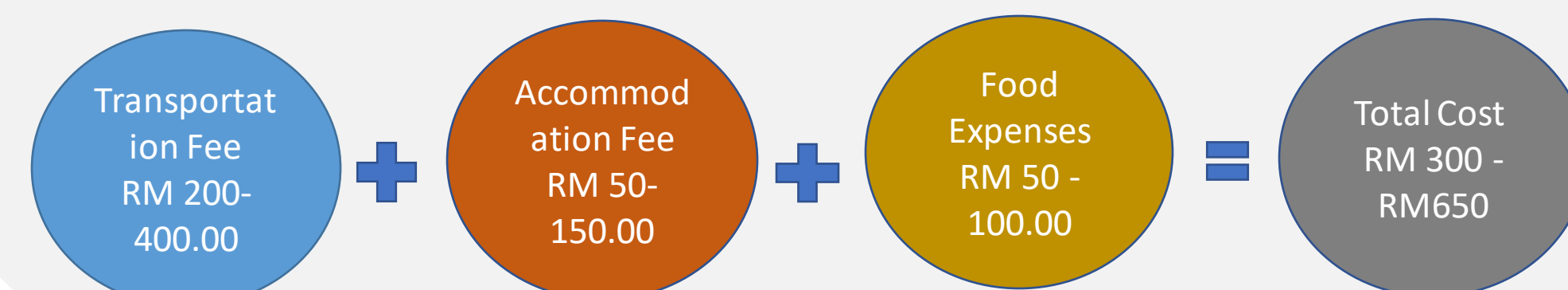
Picture 2 showing "Mobile Endoscopic System: Karl Storz" TELEPACK System

## RESULT

- From 2014-2022, a **total of 2297 endoscopic examination** were performed including of **1529 esophagoduodenoscopy and 768 Colonoscopy** in these 4 district hospitals. It's about **12.5%** of all endoscopic examination done in Hospital Queen Elizabeth (HQE) from 2014-2022.
- **Total 607 endoscopies done in Hospital Beaufort, 654 cases in Hospital Ranau and 964 cases in Hospital Kudat** since 2014.
- Started to support and perform endoscopy service in **Hospital Kota Marudu since 2019** and recorded a total number of 72 cases.
- However, there was a dramatically declination on endoscopic services from 2020 to 2022 due to Coronavirus disease 2019 (COVID-19) pandemic which as an **unprecedented global crisis** immediately affected healthcare services.



- Gastrointestinal cases were underestimated and we are in the midst of collecting data for Sabah populations. Within these 3 years, we managed to record 63 new cases of esophageal cancer, 161 cases of gastric cancer and 660 cases of colorectal cancer.
- After implementing this mobile endoscopic service., It saved up to about RM650 – 800 per patient which including transportation fees, accommodation fees and food expenses.
- Mean employee monthly salary Malaysia 2020 – RM1650-2000, so daily wages loss/person about RM100.
- Cost by region per trip for patient to travel from district to Hospital Queen Elizabeth is about RM200-RM400 and food expenses up to RM50 per person per day. Accommodation fees may up to RM50-150 for basic hostel or hotel per night.
- With such service, it totally perceived savings up to RM750/patient per day, with the amount of endoscopic examinations done, it estimated save up to RM1722,750 in 9 years duration.



## CHALLENGES

### Patients

- No basic road access or transport especially for those who stay in rural area
- Lack of awareness for health checkup and less exposure to screening program
- Financial restraint for travelling and healthcare service including cost of medication

### Hospital

- Structural challenges including no room for expansion and old buildings unsuitable for reconstruction to accommodate the system
- Aged assets which require high costs for replacements
- High turnover rate for trained staff and lack of manpower in HQE will lead to reduction of staffs on visiting trip
- Non-specialist lead cluster service and decide on proper arrangement for endoscopic services – may lead to delay in diagnosing and poor preparation prior to endoscopic examination



## CONCLUSION

### By providing this mobile endoscopic services,

- Early detection of gastrointestinal disease in this population
- Cost effective
- Globalization for healthcare for rural area population
- Reduce patient loads in tertiary hospital

### To ensure sustainability of this endoscopic service,

- Essential to product well-trained district specialists, medical officers and endoscopic staffs
- Adequate funding and transport support from government
- Regular Service and maintenance of mobile endoscopic system

## REFERENCES

1. DOSM pocket stats Q1 2022.
2. Karl Storz, TELE PACK Manual 2013.
3. Ng CJ, Teo CH, Abdullah N, Tan WP, Tan HM. Relationships between cancer pattern, country income and geographical region in Asia. BMC Cancer. 2015;15:613.