Enhancing Clinical Efficiency in Ophthalmic Specialist Outpatient Clinic- Kowloon East Cluster experience
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Introduction
Due to increasing service demand, the attendance of specialist outpatient in the Ophthalmology of Kowloon East Cluster (KEC) has increased by more than 30% over the past few years. The average attendance per day in United Christian Hospital alone is around 400-500 per day. As most patients need to undergo visual acuity (VA) examination, intra-ocular pressure measurement (IOP) and pupillary dilatation before clinical examination by ophthalmologists, any delay in the above will have profound effect on the efficiency and flow of the clinic. Conventionally, VA examination requires testing distance of 6 meter or 20 feet and intraocular pressure assessment usually requires a desktop non-contact tonometer (NCT). In addition, working tables are needed for nurses to keep other essential items like patient’s medical records and eye drops. With physical space constraint, it is not uncommon to have several rooms to accommodate all of the above examinations. This kind of workflow, however, has several disadvantages including patient travelling to different rooms to complete all the above examinations and also difficulty in ensuring availability of medical records. We thrive to provide all the above examination a one-stop manner. The challenge is huge as no additional physical space was given to handle such a large number of patients and to accommodate all eye instruments.

Objectives
1. To accommodate 3 VA charts and 2 non-contact tonometer and 2 working tables
2. To minimize patient travelling to different examination rooms
3. To provide one-stop examination

Methodology
A working group, including doctors and nurses, allied health sand supporting staff,
was formed to re-evaluate the whole eye patient journey. A three-thronged approach was adopted, including (1) re-engineering of the whole workflow (2) redesign the layout of the eye examination room (3) source space-saving eye examination equipment in the market.

**Result**

Results: In order to increase the number of VA testing stations, specially designed VA examination booths were made. With the use of space-saving visual acuity charts the testing distance is reduced to 0.9 meter. These VA examination booths also have partitions and working table. It does not only provide privacy to patients but also accommodate all the necessary accessories for examination. As a result, we increased the number of VA testing stations from 2 to 3 in the examination room. For IOP checking, we have accommodated 2 NCT stations. We also started the use of lightweight contact IOP measurement for wheelchair patients. Pupil dilatation station is placed just next to the NCT stations. As a result of the above, our nurses and supporting staff can complete the work of VA testing, IOP checking and eye drop application in an efficient way. A total of 3 VA examination booths, 2 NCT stations and 2 dilatation stations are successfully placed and operated smoothly in 1 examination room with an area of 26 meter square. Conclusion: Our three-pronged approach to re-engineer of workflow, redesign of layout and the use of space saving equipments can successful boost clinical efficiency in a busy ophthalmic specialist clinic in KEC. It does not only enhance clinical efficiency but also minimize patient’s travelling time to different examination rooms and minimize transfer of medical records. The involvement of all stakeholders is essential for our success.