Resource Optimisation through Process Re-engineering

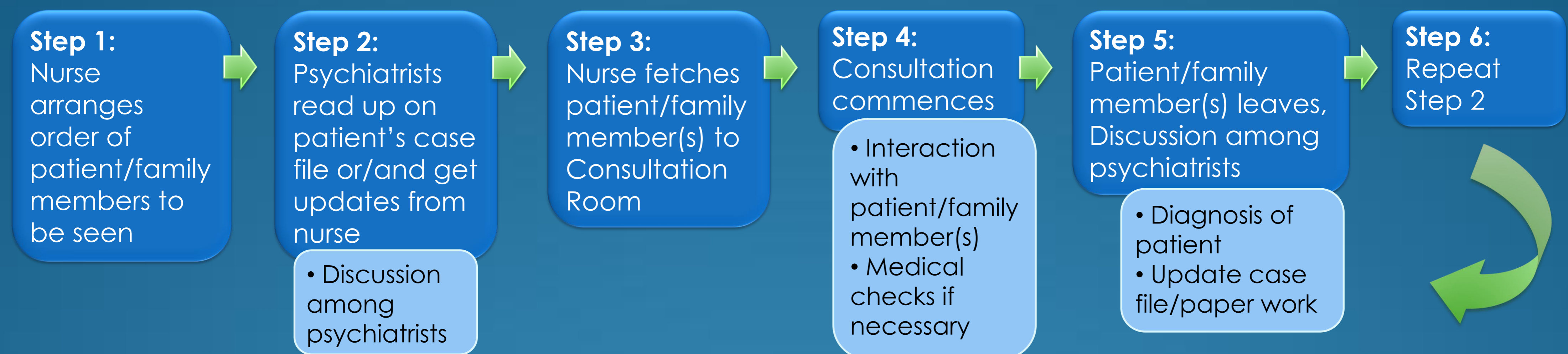**SUPERVISORS** DR YAP CHEE MENG . DR NG TSAN SHENG ADAM **TEAM** LIM TECK LONG . LOW YING QI . SEAH GONG HENG JENSEN . TAN JING XIAN . YONG ZI QING

IMH'S BACKGROUND

IMH is Singapore's main psychiatric hospital, providing Inpatient Ward-care and Specialist Outpatient Clinics.

THE PROBLEM

Each morning, psychiatrists review patients in their assigned ward. This activity is known as **Inpatient Ward Round** and its time taken **Ward Round Duration**. The ward round duration has high variability and this affects the psychiatrists' daily schedules.

OBJECTIVE

To find opportunities to reduce the duration and the time variability for daily morning inpatient ward rounds in General Psychiatry wards to prevent disruption to the psychiatrists' schedules due to excessively-long ward rounds.

PROCESS FLOW

Step 1: Nurse arranges order of patient/family members to be seen

Step 2: Psychiatrists read up on patient's case file or/and get updates from nurse
- Discussion among psychiatrists

Step 3: Nurse fetches patient/family member(s) to Consultation Room

Step 4: Consultation commences
- Interaction with patient/family member(s)
- Medical checks if necessary

Step 5: Patient/family member(s) leaves, Discussion among psychiatrists
- Diagnosis of patient
- Update case file/paper work

Step 6: Repeat Step 2

PART 1: PRELIMINARILY ANALYSIS

There are 4 types of cases among patients in a ward round: Re-admissions, New Admissions, Reviews, and Family Consultation With Doctors (FCWD).

From a total of 356 case types observed in inpatient ward rounds across 1 month, the top 20% most time-consuming cases were extracted, as shown below.

Re-admissions 15% | FCWDs 49% | Reviews 29% | New Admissions 7%
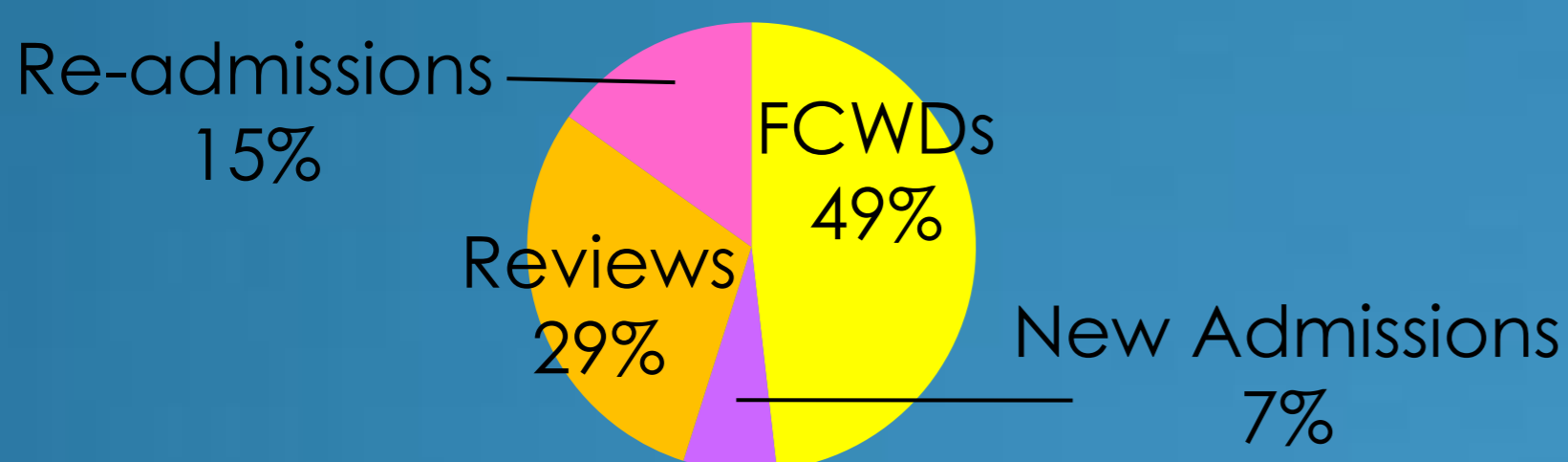
According to the pie chart above, FCWDs take up the largest proportion of time for the combined duration of the top 20% most time-consuming cases.

PART 2: ANALYSIS OF VARIANCE (ANOVA) TEST

For each case type, we sort the ward round durations into categories according to the number of cases of that particular case type each day. ANOVA based on the random-effects model is used to determine whether the varying numbers of each case type causes the ward round duration to vary.

Using significance level of 0.05, we obtain these results:

Case Type	P-Value	Significant?
Reviews	0.261	No
Re-admissions	0.215	No
New Admissions	0.966	No
FCWDs	**0.024**	**Yes**

At this significance level, only the FCWDs result is significant.

CONCLUSION

FCWD has been identified as a case type that greatly affects the ward round duration. Unlike Re-admission and New Admission cases, the number of FCWDs reviewed by the psychiatrists in a ward round can be easily controlled using a simple scheduling method. This was implemented in a trial.

TRIAL OBJECTIVES

- To even out the number of FCWDs across a week so there is no congregation of FCWDs on any day
- To shorten and have less variation on the ward round duration
- To allow psychiatrists to better predict the end time of inpatient ward round

TRIAL OVERVIEW

- Target sward – Ward 35B
- Trial period of 2 weeks
- Introduced a new scheduling method for FCWD by limiting to 3 FCWDs per inpatient ward round