

other front office areas rather than the pattern of the arrival process. This resulted in complete lack of synchrony between the arrival rate and the net service rate. This problem was further exaggerated by the fact that an increase in number of counters actually leads to a decline in service rate per counter. The value of Pearson Correlation Coefficient,  $r$  being very close to 0, validates that both these factors are working in synergy to disrupt any positive linear association between the arrival rate of the patients and the net service rate provided by all available registration counters. Besides, the failure of the net service rate to increase sizably despite increasing the number of service counters will independently jeopardize the synchrony between the arrival rate and the net service rate, even if any bona fide attempts are made in this direction. The large pool of patients that congregated each morning even before the commencement of the registration also warrants special attention.

## CONCLUSION

The study was undertaken following patients' grievances regarding long waiting time for new registration in the OPD. At the outset, a pilot study was done for one week to identify the main bottlenecks in the system. Due to non-steady state of the registration system and pooling of patients in early morning hours, application of 'Classical Queuing Model' in this problem situation was not possible. Scenario-specific, problem-driven alternative approach to data analysis was thus used. The bottlenecks identified during the pilot study were validated scientifically in the main study using standard statistical techniques, and contributing factors were identified simultaneously. Multiple factors such as lack of synchrony between arrival rate and net service rate, 'Processes Loss', inadequate physical facilities, non-deputation of any trained MSW, lack of soft skills in staff, initial pooling of patients etc. were responsible for astronomical waiting time for new registration in OPD at SGPGIMS leading to patient dissatisfaction.

Following *recommendations* are deemed necessary to ameliorate the registration process holistically and significantly assuage the patients' grievances:

1. Instead of 8 a.m., the registration should commence from 7 a.m. onwards. This will partially take care of the initial pool of patients, thus preventing the system from over-congestion even before the start of the registration process.
2. A full time MSW should be present at the enquiry counter. This will ensure the following:
  - a. Proper filling of the enquiry slip by the patients.
  - b. The references of all patients are meticulously verified at the enquiry counter itself.
3. Computer department should ensure optimal working of the server, especially during peak hours.
4. A notice board detailing the patients on OPD days/availability of various doctors department-wise should be provisioned in the registration hall itself.
5. As soon as the upper ceiling, limiting the number of new patients to be registered per day, of a particular department is reached, it should be communicated conspicuously to all the waiting patients in the system via an electronic sign board.
6. Front office manager should ensure relocation of staff from other front office areas to run additional registration counters vis-à-vis the workload. All six registration counters should be operational between 7 a.m. to 8 a.m. daily to nullify the effect of initial pool. Again all registration counters should be operational between 9a.m. to 10.30 a.m. Additionally, on Mondays and Tuesdays, five counters should be operational between 10.30 a.m. to Noon. In fact, a flexible approach based on perspicacious observations and meticulous follow-ups holds the key.
7. Proper monitoring on the part of front office manager will ensure that staff at different registration counters doesn't ease up when more counters are working concurrently.
8. Hospital Management should ensure that technical and soft skills of the staff manning the registration counters should be regularly evaluated and upgraded, if necessary. In these workshops, special focus should be on staff relocated from other areas to the registration counters during peak hours. Communication and Teamwork should form the crux of soft skill curriculum.
9. Hospital Management should ensure that a separate counter for SGPGI staff with strictly scheduled working hours should be in place. This will ensure queue discipline in the registration system.
10. Maintenance cell should be proactive vis-à-vis lamination machine & token display machine, available at all the six registration counters. This will ensure minimum breakdown of the same.

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