

## Optimization of Outpatient Transplantation Services During the COVID-19 Pandemic: A South-East Asian Tertiary Organ Transplant Centre Experience

### Editor

The COVID-19 pandemic has disrupted the delivery of surgical care worldwide<sup>1</sup>. Prompt restructuring of existing healthcare systems have allowed essential surgical services to be maintained<sup>2</sup>. Nonetheless, the continuation of transplant services can be challenging given the quadripartite equipoise surrounding organ transplantation in a pandemic. Furthermore, the increased complexity in the management of this group of patients often requires multidisciplinary consultations and close follow-up in the outpatient setting. While safe surgical and endoscopy protocols have been established<sup>3,4</sup>, there remains a paucity of information to guide outpatient transplantation services to minimize infection transmission. We describe three areas in which outpatient transplantation services were optimized in our centre.

Transplant physicians were segregated into two groups to fulfil inpatient and outpatient duties on alternate weeks. Transplant coordinators worked closely with clinicians to prioritize and defer clinic visits for urgent and stable cases respectively. A master list of patient details and new follow-up dates was maintained to ensure continuity of care. Outpatient nurses were tasked with temperature taking, assessment of respiratory symptoms and evaluation of significant travel history during patient registration. The number of housekeeping staff were increased to improve sanitation and hygiene standards. The Singapore Airlines cabin crew was also redeployed to fill the role of care ambassadors under the supervision of nursing staff.

Personnel	Events/Steps	PPE required
Patient escort	<ul style="list-style-type: none"> <li>• Patient informs clinic upon arrival</li> <li>• Patient escort meets patient at entrance and escorts patient to consult room for registration before leaving room</li> <li>• Patient fills up questionnaire that assess for symptomatology and travel history</li> </ul>	Surgical mask
Nurse	<ul style="list-style-type: none"> <li>• Nurse dons PPE outside consult room and enters room for assessment of patient based on the questionnaire and triaging which includes temperature and vitals measurement</li> <li>• Nurse removes PPE and exits room after completion of tasks</li> </ul>	Full PPE
Doctor	<ul style="list-style-type: none"> <li>• Doctor accesses patient medical records via a workstation in a separate clean consult room</li> <li>• Doctor dons PPE outside consult room and enters room to assess patient</li> <li>• Doctor removes PPE and exits room after completion of assessment</li> <li>• Doctor meets with transplant coordinator to communicate plans in a separate clean consult room</li> </ul>	Full PPE
Transplant Coordinator	<ul style="list-style-type: none"> <li>• Transplant coordinator provides confirmation of treatment/follow-up plans and prescriptions (if any) to patient before escorting patient out of clinic via back door</li> </ul>	Surgical Mask
Housekeeper	<ul style="list-style-type: none"> <li>• Housekeeper dons PPE outside consult room and enters room for area cleaning after each patient</li> <li>• Terminal cleaning is done for the entire clinic compound at the start and end of each day.</li> </ul>	Full PPE

A phased approach to clinic visits depending on the level of transplant activity was adopted. Patients who had undergone recent surgery or with acute complications were prioritized. Outpatients clinic scheduled were segregated to a) asymptomatic patients needing review but without the travel or exposure history b) symptomatic patients (but without respiratory symptoms or travel/exposure history) c) patients recently discharged from hospital or exposure to patients with recent hospital visits. Less essential face-to-face visits were replaced with consultations held via hospital approved secure online telecommunication platform. Technical visits involving phlebotomy, vaccination and wound review were decanted

to primary healthcare. Immunosuppression prescriptions were titrated based on teleconsultation and hematological results and delivered to patient homes. Financial charges were facilitated via a home billing system.




All personnel involved in outpatient care were trained in donning-and-doffing of personal protective equipment. N95 masks were replaced 4 hourly but protective gloves/gowns were changed after each patient exposure. Standard measures such as social distancing, hand hygiene and mask wearing were enforced. The patient clinic consultation workflow is described in *Table 1*. Area cleaning involving the thorough wipe down of furniture surfaces and medical

equipment was required of clinic rooms after each consultation.

The Disease Outbreak Response System Condition (DORSCON) Orange (7<sup>th</sup> February–6<sup>th</sup> April 2020) and Circuit Breaker (7<sup>th</sup> April–1<sup>st</sup> June 2020) involved a stringent set of preventive public health measures implemented by the Singapore government. Expectedly, the number of first visits and review cases during this period dropped by 29.2% (29 *vs* 41) and 46.4% (237 *vs* 442) respectively as compared to the four months prior to DORSCON orange. Nonetheless, the proportion of first visits-to-review cases remained similar between both pre- and post-DORSCON Orange periods (10.9% *vs* 8.5%,  $p = 0.295$ ). Till date, there are no known cases of infection transmission within the outpatient transplantation service in our institution.

The scalability of the phased approach ensures that transplant patients can continue to be cared for in the outpatient setting during the

pandemic. Useful adjuncts such as teleconsults and home delivery can help to decrease physical patient-to-healthcare worker interactions<sup>5</sup>. It is likely that hygiene practices, social distancing, screening and mask wearing may well be a ‘new normal’ in the future and these principles may have to be incorporated in the outpatient transplant setting.

Jarrold Kah Hwee Tan<sup>1</sup> , Ning Qi Pang<sup>1</sup>, Glenn Kunath Bonney<sup>1</sup>, Alfred Wei Chieh Kow<sup>1</sup> , Anantharaman Vathsala<sup>2</sup> and Shridhar Ganpathi Iyer<sup>1</sup> 

<sup>1</sup>Liver Transplantation, National University Centre for Organ Transplantation, National University Hospital, Singapore and <sup>2</sup>Kidney & Pancreas Transplantation, National University Centre for Organ Transplantation, National University Hospital

DOI: 10.1002/bjs.11968

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