**INTRODUCTION**

SingHealth Experimental Medicine Centre (SEMC) provides comprehensive services for research and training using animals by Principal Investigators (PIs). The services include veterinary care, technical services and supply of consumables. The projects SEMC serves are broad-based, from oncology, device development to workshop support, using both small and large animal models. There are more than 100 on-going projects SEMC supports at its facilities in Academia and National Large Animal Research Facility (NLARF). It also provides veterinary support to Duke-NUS Vivarium. In addition, SEMC supplies animals and samples to approximately 20 projects conducted outside the mentioned SEMC facilities.

The services SEMC provides are mainly performed where the animals or samples are handled, such as, animal holding rooms, operating theatres and laboratories. In these work areas, to prevent cross-contamination, notes-taking activities are discouraged. In addition, the projects require multi-disciplinary expertise from multiple personnel in SEMC. Unfortunately, reporting function for billing purposes has not been developed in SEMC’s database system. Therefore, SEMC’s project in charge (PICs), who are mainly from Research and Veterinary teams, have traditionally been accustomed to do services reporting during their own administrative time at the end of every service month, for verification by Project Executives (PEs) thereafter. SEMC issues approximately 100 research services invoices^* per month.

**OBJECTIVES**

- To facilitate prompt initiation of reporting process after services are performed by PICs amongst on-going projects activities
- To provide for mechanism to update PIs promptly on details of performed services and to allow PIs verify billing details in advance
- To reduce lead time between performance of services and issuance of invoices
- To improve accuracy of SEMC invoices

**METHODOLOGY**

- Development of template and workflow for straight forward service reporting (SR) by SEMC PICs
- Effective communication on the implementation of new workflow to PIs and provision of efficient admin support
- Acquisition of PIs acceptance of SEMC SRs within a stipulated timeline

**FY17: Previous Project Billing Workflow and Timeline**

<table>
<thead>
<tr>
<th>Month 1</th>
<th>Service Provision Month</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Services 1</td>
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<td>Week 2</td>
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<td>Week 3</td>
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<td>Week 4</td>
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**FY18: Improved Project Billing Workflow and Timeline**

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<th>Week 1</th>
<th>Week 2</th>
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<th>Week 4</th>
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<tr>
<td>Services 1</td>
<td>Services 2</td>
<td>Services 3</td>
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</table>

- Updated Admin Ops Records^*
- Collation of Admin Ops Records^*
- Verifications by PEs
- E-Forms submission for invoicing
- Invoices issued
- Invoices received by PIs
- SR #1 & PIs verification
- SR #2 & PIs verification
- SR #3 & PIs verification
- SR #4 & PIs verification

**RESULTS**

The new workflow initially attracted apprehension but it was successfully implemented within 3 months to SEMC projects in Academia and NLARF. The feedbacks gathered from PIs and all in SEMC, after the implementation, are generally positive. By end of FY18, it has helped SEMC issue 88% of its research services invoices^* within 1 month from the end of service provision month. This is close to 20% increase from that in FY17. There was also significant improvement in PIs’ acceptance to SEMC charges and more than 60% reduction in the number of Credit Note (CN) issued.

*Research services invoices refer to invoices issued for the services provided to research/workshop projects and exclude fixed fee services/charges (e.g. rental), which invoices are issued at the beginning of the month.

**CONCLUSION**

The new SR workflow has helped SEMC improve the recording and billing of services provided to PIs.