CHAPTER VI
CONCLUSION AND SUGGESTION

This chapter will conclude some analysis which has been made and also give some suggestions based on the research at PT Otsuka Indonesia.

1.1 Conclusion
1. Risk assessment on body segments for manual handling activity is conducted in two departments, namely sterilization department and molding department, with the help of Quick Exposure Checklist (QEC).
   - In sterilization department, QEC score for back segment is 31.33; QEC score for shoulder/arm segment is 34.5; QEC score for wrist/hand segment is 30.08; and QEC score for neck segment 11.75.
   - In molding department, QEC score for back segment is 26.25; QEC score for shoulder/arm segment is 29.25; QEC score for wrist/hand segment is 28.25; and neck segment is 12.42.
   - The result of QEC score for each segment in both departments is in level 5 – 6, which means that the job needs to be investigated further and changed soon.
2. The result of QEC score for sterilization department and molding department is the same level, which is level 5 – 6.
   - In total, the sum of QEC score for sterilization department is 107.7. Meanwhile the sum of QEC score for molding department is 96.17.
   - Based on the total QEC score for both departments, it can be concluded that manual handling activity in sterilization department is riskier than manual handling activity in molding department.
3. The risks of manual handling activity in two observed departments are because of the way operators perform the job. Manual handling activity in both sterilization department and
molding department affects back posture the most. It can be seen from the moment back posture.

- In existing working posture A of sterilization department, the moment of back posture is 238.9 LbF.in, meanwhile the moment of back posture for working posture B is 371.8 LbF.in.

- In existing working posture B of molding department, the moment of back posture is 724.5 LbF.in, meanwhile the moment of back posture for working posture B is 340.8 LbF.in.

4. There are two recommendations which are made for each department. These recommendations are expected to reduce the risk of operators getting injured.

- In sterilization department, improvement on working posture A has reduced the moment from 698.5 LbF.in to 517.1 LbF.in. For working posture B, the improvement has reduced the moment from 1721.11 LbF.in to 1329 LbF.in.

- In molding department, improvement on working posture A has reduced the moment from 1281.5 LbF.in to 837.8 LbF.in. Meanwhile, the improvement for working posture B has reduced the moment from 1145.1 LbF.in to 357.8 LbF.in.

- In average, it can be concluded that the moment for working posture in sterilization department has decreased 24%. And the moment for working posture in molding department has decreased 52%.

5. The improvement of working posture in sterilization department and molding department has caused a change on their accident cost.

- A slight decrease occurs when the improvement scenario is applied on the system. For example, from the year 2006 to 2008 the value of accident cost for existing condition is Rp 2.052.000,00; Rp 2.130.000,00; and Rp 3.270.000,00. Meanwhile, for improvement condition the the value of
accident cost for improvement condition in the same year is Rp 1.847.000,00; Rp 1.932.000,00; and Rp 2.935.00,00.

- The same thing happens in molding department. From the year 2006 to 2008 the value of accident cost for existing condition is Rp 2.114.000,00; Rp 2.152.000,00; and Rp 3.316.000,00. Meanwhile, for improvement condition, the value of accident cost for improvement condition in the same year is Rp 1.648.000,00; Rp 1.721.000,00; and Rp 2.582.00,00.

6. Based on the simulation, it can be concluded that physical workload, accident rate, and accident cost affects each other. If the value of physical workload increases, then the number of accident rate increases too. Furthermore, the accident cost also increases.

1.2 Suggestion
1. Standard Operating Procedure for manual handling activity is needed when the improvement is implemented.
2. Some factors which build accident cost needs to be evaluated further, for example main salary. It needs further investigation, whether main salary affects accident cost or not.
3. It needs further investigation about what kind of accidents contribute to loss time.
4. The change of working posture does not only affect accident cost. It can be considered affect other factors, for example productivity of the worker.
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