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MONITORING INDICATORS TO EVALUATE THE COMPLIANCE TO STANDARDS AND IMPROVEMENT OF WORK PROCESS

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Abstract: Hospital A measures various indicators for legal and authority compliances and the improvement of work process and work flow. Four indicators are monitored for legal and authority compliances and eleven indicators for the improvement of work process and work flow. Indicators for legal and authority compliances consisting of breastfeeding, release of bodies to next of kin, BLS certificate and in-service training for nursing staff. In term of the improvement of work process and work flow , indicators are related to completeness of records for case notes, initial nursing assessment for inpatient, nursing care plan on discharge, case summaries completed within 72 working hours of discharge and medical report prepared within 14 working days. The completeness of case notes according to the medical record criteria is further sub divided into patient and family right, patient and family education, assessment of patient, anaesthesia and surgical care, medication management and use, management of information, care of patient and access and continuity of care. For indicators related to compliance on legal and authority requirement, Hospital A was able to achieve the target in 2014 but failed to do so in 2015 due to the increase of target from 85% to 90% in 2015. The second indicator was fully achieved for both years where no reported incident of handing wrong body to next of keen. The third indicator of achieving 100% BLS training was not achieved for both years due to the busy schedule of staff and for the last indicators, the target of 60% of trained staff attending CME was fully achieved in 2015 except for a few months of not achieving in 2014. For the first indicator related to improvement of work process and work flow, the set target was fully achieved as follows: patient and family right was fully achieved in 2015, patient and family education was fully achieved in 2015, assessment of patient was not achieved for both years of 2014 and 2015, anaesthesia and surgical care was fully achieved in 2015, medication management and use was not achieved for both years of 2014 and 2015, management of information was not achieved for both years of 2014 and 2015,care of patient was fully achieved for both 2014 and 2015 and access and continuity of care was fully achieved for 2015 except for the month of October. For indicator number 2 related to completeness of initial nursing assessment for inpatient, the target was not achieved for both years. For indicator number 3 related to the percentage of nursing care plan completed on discharge, the performance was 100% in 2014 but for 2015, target was not achieved from July to September and in the month of November. For indicator number 4 related to the completeness of report within 72 working hours , the compliance was 100% for both years. For indicator number 5 related to the percentage of medical report prepared within the stipulated period of 14 working days, the target was not achieved for both years of 2014 and 2015 due to the un-availability of the consultants within the stipulated time and increased number of medical report to be completed every month.

Keywords:indicators, legal and authority requirements, improvement of work process and work flow, medical record requirement, compliance

1. Introduction

Hospital A is a private hospital in Malaysia which had been accredited by the Joint Commission International and the Malaysian hospital accreditation body, MSQH.This hospital are monitoring four indicators for legal and authority compliance and eleven indicators to measure the improvement of work process and work flow.

According to Business Dictionary, indicator is a measurable variable used as a representation of an associated (but non-measured or non-measurable) factor or quantity. For example, consumer price index (CPI) serves as an indicator of general cost of living which consists of many factors some of which are not included in computing CPI. Indicators are common statistical devices employed in economics (business-dictionary).An indicator is a specific, observable and measurable characteristic that can be used to show changes or progress a programme is making toward achieving a specific outcome. It should be defined in precise, unambiguous terms that describe clearly and exactly what is being measured. Where practical, the indicator should give a relatively good idea of the data required and the population among whom the indicator is measured. There should be at

least one indicator for each outcome and should be focused, clear and specific. The change measured by the indicator should represent progress that the programme hopes to make.Indicators do not specify a particular level of achievement -- the words "improved", "increased", or "decreased" do not belong in an indicator. Good indicators should be valid with accurate measure of a behaviour, practice, taskthat is the expectedoutput or outcome of the intervention, reliable which are consistently measurable over time, in the same way by different observers, measurable with quantifiable using available tools and methods, timely whichprovides a measurement at time intervals relevant and appropriate in terms of programme goals and activities, precise which areoperationally defined in clear terms and programmatically important that linked to the programme or to achieving the programme objectives (Gage and Dunn, 2009).

Indicators can measure process, outputs, inputs and outcomes. Input indicators measure resources, both human and financial, devoted to a particular program or intervention (i.e., number of case workers). Input indicators can also include measures of characteristics of target populations (i.e., number of clients eligible for a program). Process indicators measure ways in which program services and goods are provided (i.e., error rates). Output indicators measure the quantity of goods and services produced and the efficiency of production (i.e., number of people served, speed of response to reports of abuse). These indicators can be identified for programs, sub-programs, agencies, and multi-unit/agency initiatives.Outcome indicators measure the broader results achieved through the provision of goods and services. These indicators can exist at various levels: population, agency, and program. Population-level indicators measure changes in the condition or well-being of children, families, or communities (i.e., teen pregnancy rate, infant mortality rate). Changes in population level indicators are often long-term results of the efforts of a number of different programs, agencies, and initiatives. In some cases, rather than providing information about the results achieved by interventions, population-level indicators may provide information about the context in or assumptions under which these interventions operate. For example, the overall level of unemployment provides important contextual information for job placement programs. In this case, monitoring the unemployment rate allows stakeholders to correctly interpret program results. Agency-level indicators measure results for which an agency is responsible; program-level indicators measure the results for which a program or sub-program is responsible. Agency- and program-level outcome indicators are often defined more narrowly those pertaining to the population as a whole; for example, they may measure pregnancy rates among teenage girls in a given county or among girls receiving a given set of services. Identification of appropriate indicator levels ensures that expectations are not set unrealistically high (hfrp.org).
Setsof performance indicators may be used by various institutions, including national regulatory boards, health care insurers and consumers' organizations. Besides quality improvement alone, the usage of performance indicators may facilitate consumers' choices for specific providers andhealth care insurer's decisions on purchasing of health services. the usage of performance indicators may give rise to a number of managerial issues. Hospitals are confronted with a rapidly growing number of externally imposed sets of data to begathered, leading to increasing registration activities and costs, with the impact on patient outcomes being to a considerable extent unknown(Zichtbarezorg,Spath PL) . A major issue is therefore the harmonization of the sets ofnational hospital performance indicators with other, externally imposed initiatives toassess and monitor the quality of hospitalcare. Moreover, harmonization with internal quality management systems and planning and control cycles of individual hospitals is needed. It has however been noted thatharmonization may be only in partfeasible and desirable . Strategic choices are therefore needed, to balance on the one side the efforts needed to complywith externally defined performance indicators and on the other side their potential benefits on the organizational level. These strategic choices pertain to the linking with the internal qualitymanagement system of the hospital; the role of performance indicators inthe hospital's competitive position; and the infrastructure needed for the registration, analysis and internal and external reporting of information related to performance indicators. In general, compliance means conforming to a rule, such as a specification, policy standard or law. Regulatory compliance describes the goal that organisations aspire to achieve in their efforts to ensure that they are aware of and take steps to comply with relevant laws and regulations. Due to the increasing number of regulations and need for operational transparency, organizations are increasingly adopting the use of consolidated and harmonized sets of compliance controls (Silveira,2012). This approach is used to ensure that all necessary governance requirements can be met without the unnecessary duplication of effort and activity from resources.

Processes can be formal or informal. Formal processes – also known as procedures – are documented, and have well-established steps(mindtools.com). For example, you might have procedures for receiving and submitting invoices, or for establishing relationships with new clients. Formal processes are particularly important when there are safety-related, legal or financial reasons for following particular steps.Informal processes are more likely to be ones that you have created yourself, and you may not have written them down. For example, you might have your own set of steps for noting meeting actions, carrying out market research, or

communicating new leads.These different kinds of processes have one thing in common: they're all designed to streamline the way that you and your team work.When everyone follows a well-tested set of steps, there are fewer errors and delays, there is less duplicated effort, and staff and customers feel more satisfied.Processes that don't work can lead to numerous problems such as customers may complain about poor product quality or bad service, colleagues get frustrated, work may be duplicated, or not done, costs increase, resources are wasted and bottlenecks can develop, causing you to miss deadlines.

"Process improvement" means making things better, not just fighting fires or managingcrises. It means setting aside the customary practice of blaming people for problems orfailures. It is a way of looking at how we can do our work better.When we take a problem-solving approach or simply try to fix what's broken, we may neverdiscover or understand the root cause of the difficulty. Murphy's Law comes into play andour efforts to "fix" things may actually make things worse.However, when we engage in true process improvement, we seek to learn what causesthings to happen in a process and to use this knowledge to reduce variation, removeactivities that contribute no value to the product or service produced, and improvecustomer satisfaction. A team examines all of the factors affecting the process: thematerialsused in the process, the methods andmachinesused to transform the materialsinto a product or service, and the people who perform the work.A standardized process improvement methodology allows us to look at how we performwork. When all of the major players are involved in process improvement, they cancollectively focus on eliminating waste—of money, people, materials, time, andopportunities. The ideal outcome is that jobs can be done cheaper, quicker, easier,and—most importantly—safer (asq.org/gov/handbook).

Timeliness in health care is the system's capacity to provide care quickly after a need is recognized. It is one of the six dimensions of quality the Institute of Medicine established as a priority for improvement in the health care system (Institute of Medicine, 2001). Measures of timeliness include time spent waiting in doctors' offices and emergency departments (EDs), and the interval between identifying a need for specific tests and treatments and actually receiving services.

II. OBJECTIVES

i. To tabulate all data that had been collected for year 2014 and 2015
ii. To analyse all data for 2014 and 2015
iii. To develop trending by comparing data collected in 2014 with 2015
iv. To find out what are the reasons for not achieving the set targets.

III.METHODOLOGY

Retrospective study was conducted for a period of two years from 2014 to 2015. All data collected will be tabulated based on various types of indicators. A trending will be done to compare the data collected in 2014 again data collected in 2015. Analysis will be done to see the outcome of indicators' monitoring. Analysis will also be done using the Mean and Standard deviation for each indicator.

1V. RESULTS

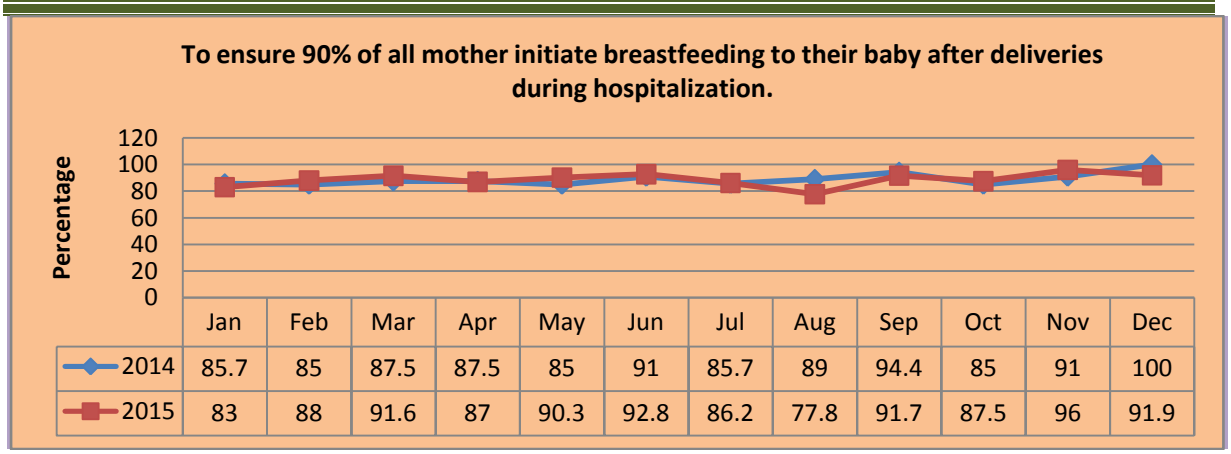
A. LEGAL AND AUTHORITY REQUIREMENT

1. To ensure 90% of all mother initiate breastfeeding to their baby after deliveries during hospitalization.

Rationale:

This indicator was selected because:

- Encourage mothers to recognize when their babies are ready to breastfeed.
- Promote bonding between mothers and babies
- Early stimulation helps to increase milk production.



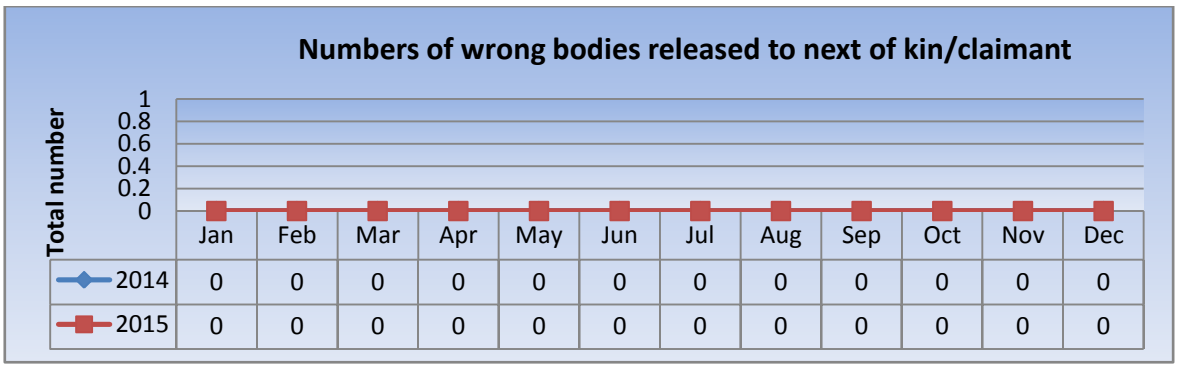
	MEAN	VARIANCE	STANDARD DEVIATION
2014	88.90	232.32	15.24
2015	88.65	265.34	16.29

2. Number of wrong bodies released to next of kin/claimant

Rationale:

This indicator was selected because;

- This indicator reflects the efficiency of the Mortuary Services. The release of wrong bodies to the next of kin/claimant can turn out to be traumatic to the family as well as a medico-legal issue and an embarrassment to the facility.

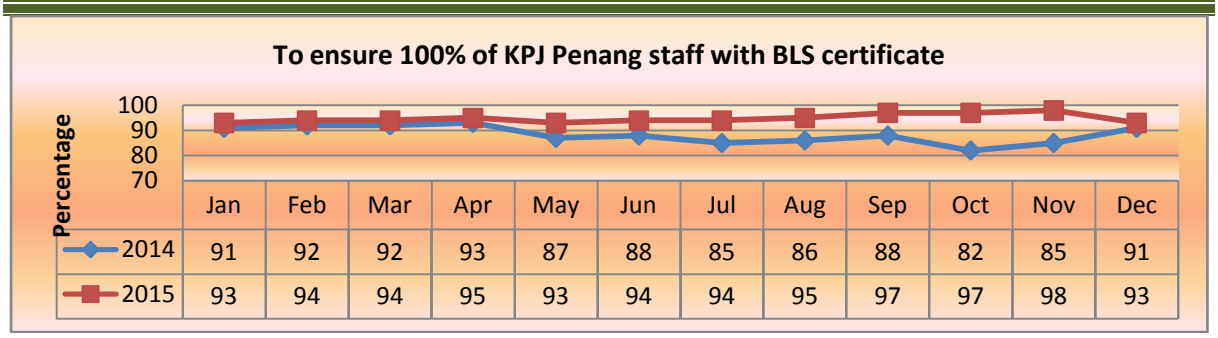


	MEAN	VARIANCE	STANDARD DEVIATION
2014	100	0	0
2015	100	0	0

3. To ensure 100% of KPJ Penang staff with BLS certificate

Rationale:

To ensure all hospital staff are competence in their basic life skills

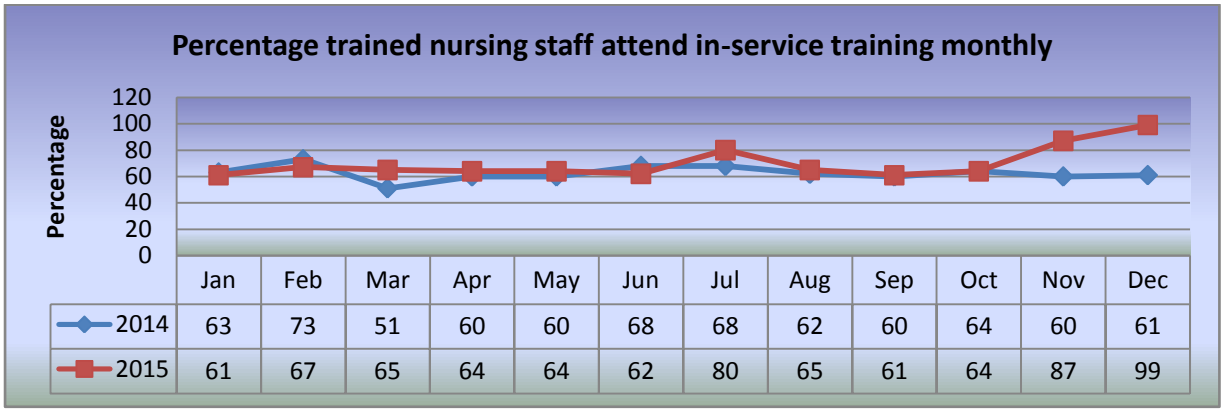


	MEAN	VARIANCE	STANDARD DEVIATION
2014	88.30	132.68	11.52
2015	94.75	32.22	5.68

4. To ensure 60% trained nursing staff attend in-service training monthly

Rationale:

1. To ensure sufficient training is provided to all trained nursing staff
2. Updates on latest knowledge and skill



	MEAN	VARIANCE	STANDARD DEVIATION
2014	62.50	333.00	11.52
2015	69.92	1622.39	40.28

B. IMPROVEMENT OF WORK PROCESS AND WORK FLOW

1. COMPLETENESS OF RECORDS

Completeness is an essential component of quality and patient care. The purpose of complete and accurate patient record documentation is to foster quality and continuity of care. According to Nicole et al (2013) completeness is context and is determined through specific data needs.

KPJ Penang followed the benchmarking from JCI 5th Edition, as a guide to define the completeness of record.

Monitoring of completeness of record are listed as below:-

1.1 95% of case notes audited comply to medical record criteria

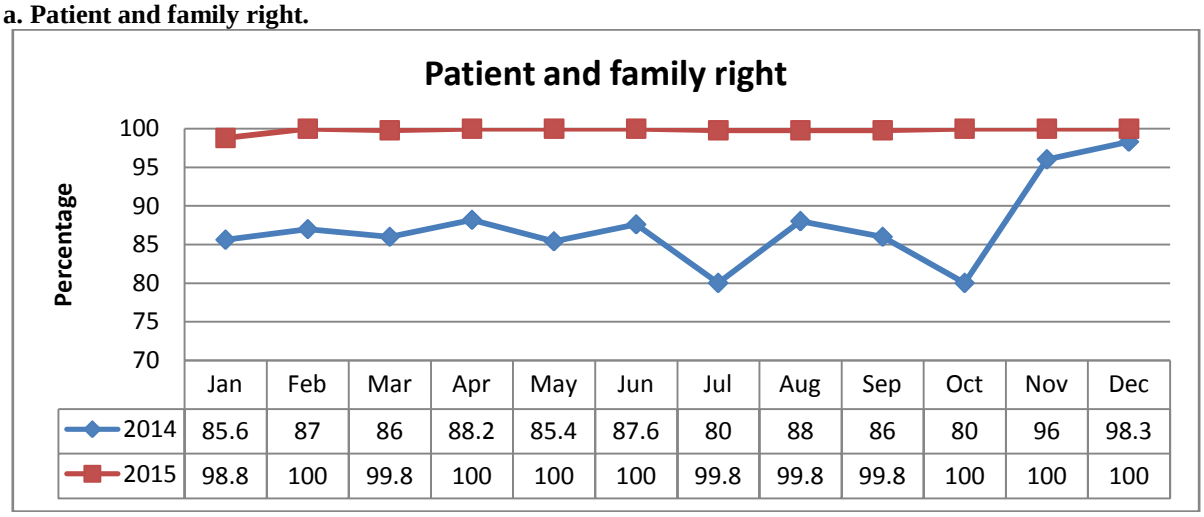
1.2 Completeness of Initial Nursing Assessment for inpatient

1.3 Percentage of Nursing Care Plan completed on discharge

1.4 Percentage of case summaries that were completed within 72 working hours of discharged
1.5 Percentage of Medical report prepared within the stipulated period (14 working days)

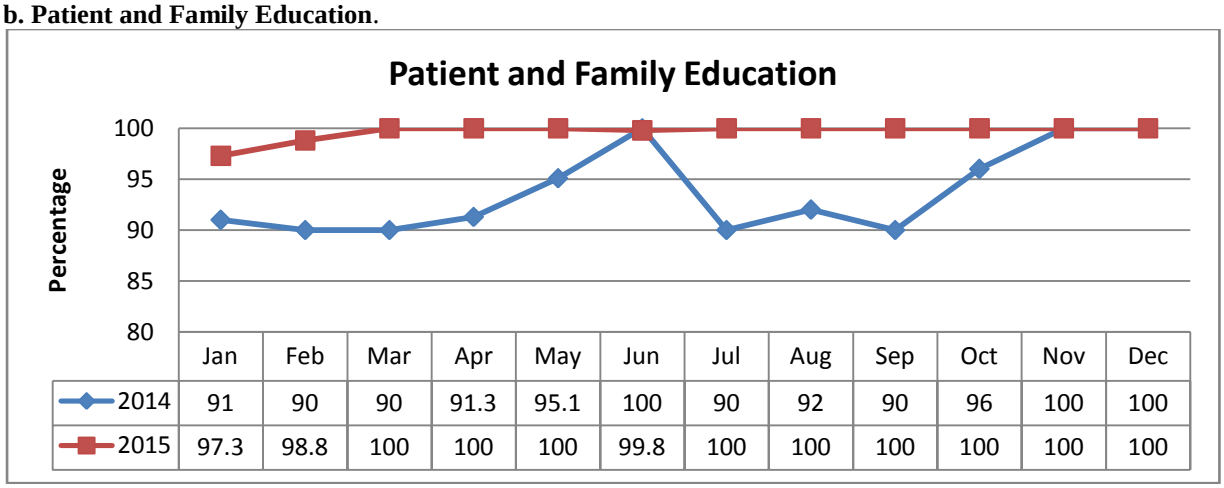
Indicator 1.1 : 95% of case notes audited comply to medical record criteria
Data Collection for 2014-2015

a. Patient and family right.



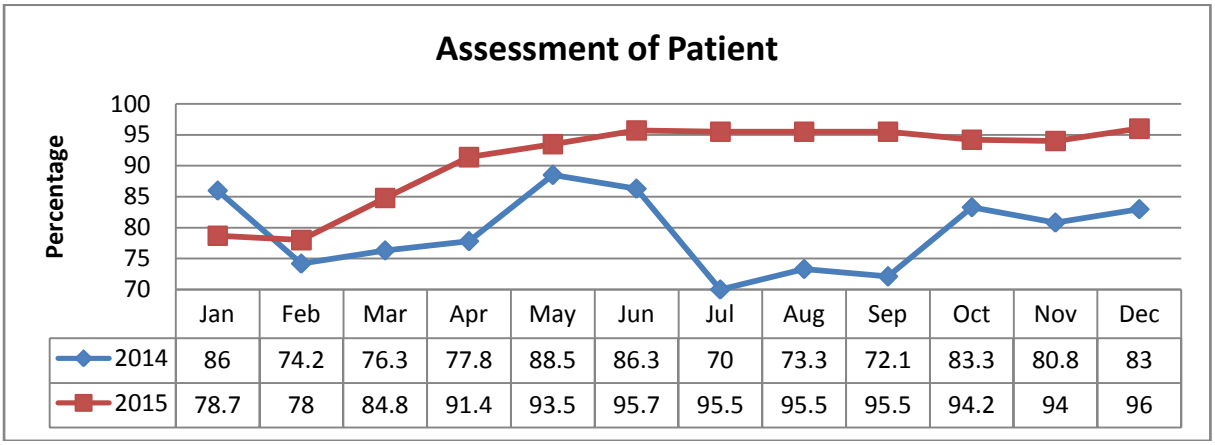
	MEAN	VARIANCE	STANDARD DEVIATION
2014	87.34	314.64	17.74
2015	99.83	2.333	1.53

b. Patient and Family Education.



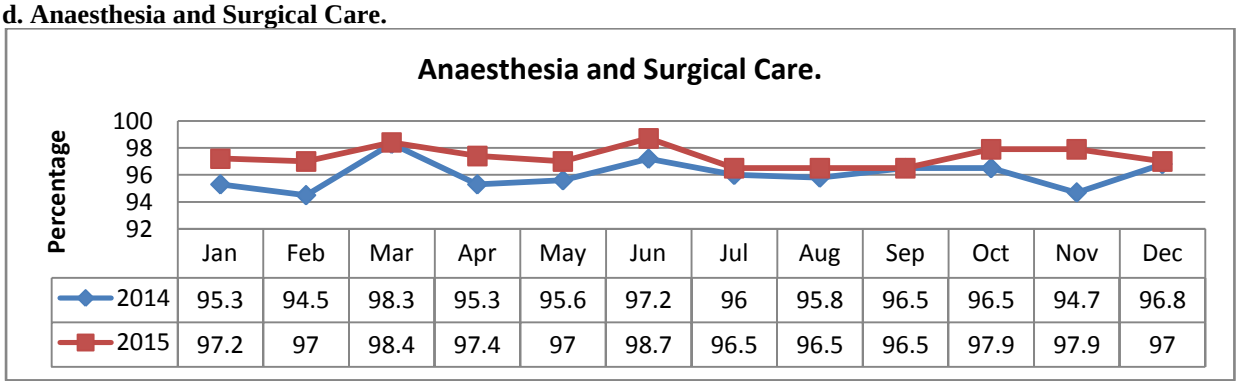
	MEAN	VARIANCE	STANDARD DEVIATION
2014	93.78	196.95	14.03
2015	99.66	7.41	2.72

c. Assessment of Patient



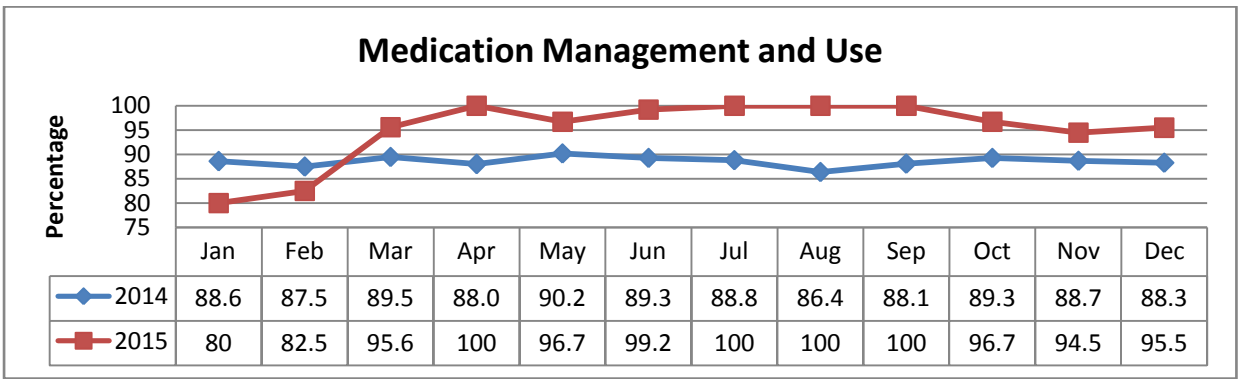
	MEAN	VARIANCE	STANDARD DEVIATION
2014	79.3	422.06	20.54
2015	91.07	492.14	22.18

d. Anaesthesia and Surgical Care.



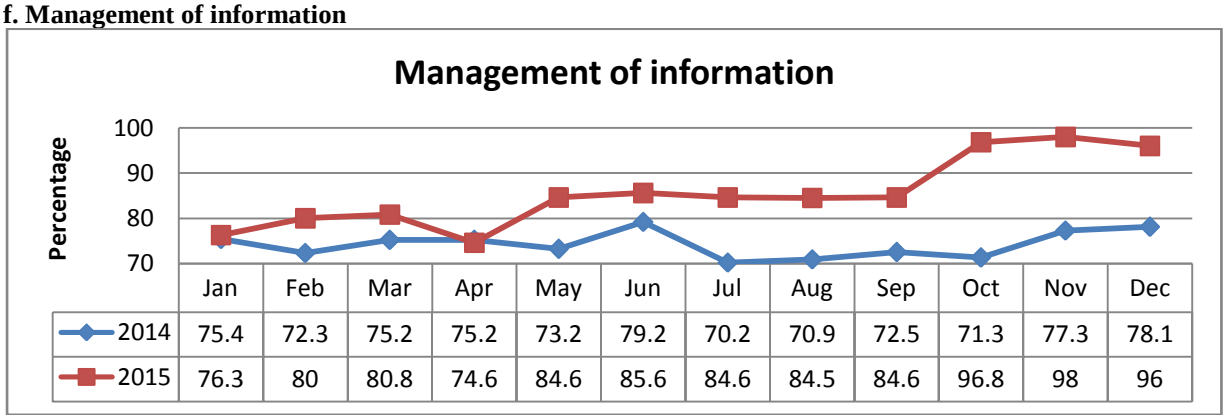
	MEAN	VARIANCE	STANDARD DEVIATION
2014	96.04	12.98	3.603
2015	97.33	6.082	1.898

e. Medication Management and Use



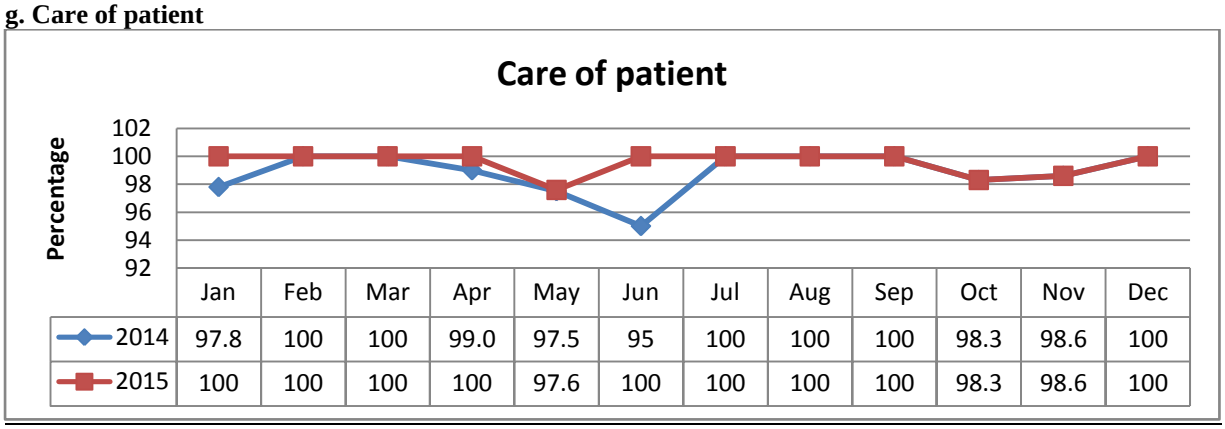
	MEAN	VARIANCE	STANDARD DEVIATION
2014	88.56	11.13	3.34
2015	95.06	505.51	22.48

f. Management of information



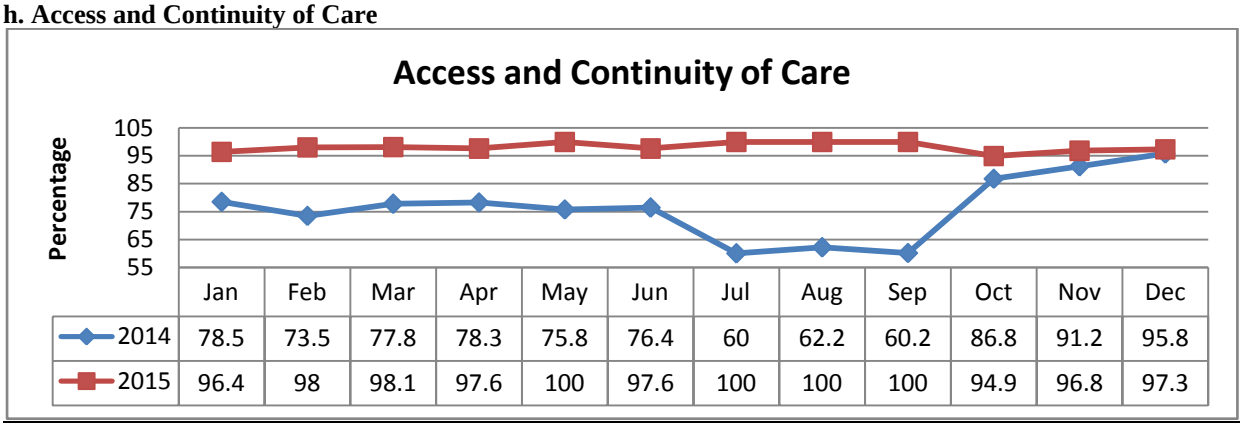
	MEAN	VARIANCE	STANDARD DEVIATION
2014	74.23	96.03	9.799
2015	85.53	653.37	25.561

g. Care of patient



	MEAN	VARIANCE	STANDARD DEVIATION
2014	98.85	26.04	5.103
2015	99.54	8.07	2.841

h. Access and Continuity of Care



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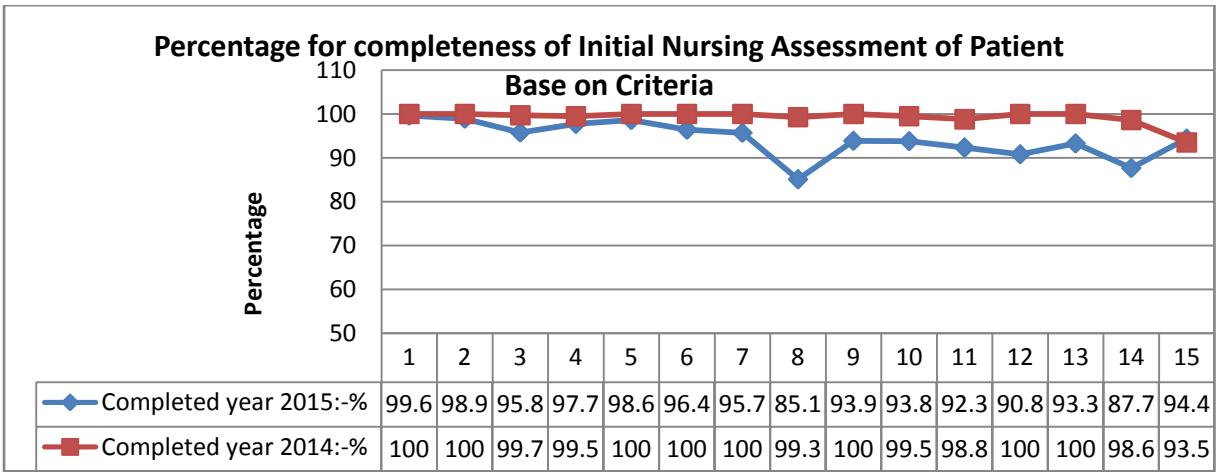
	MEAN	VARIANCE	STANDARD DEVIATION
2014	76.38	1455.06	38.145
2015	98.06	30.39	5.513

Indicator 1.2: Completeness of Initial Nursing Assessment for inpatient

Indicator of each Criteria

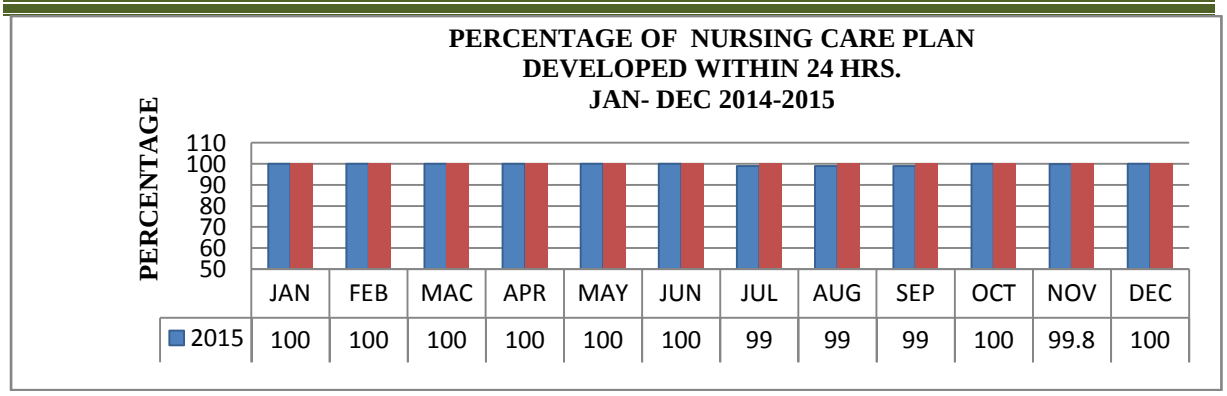
1.General consent	9.Sleeping/ rest pattern
2.Vital sign	10.Functional Status
3.Pain Score	11.Nutritional Support and risk screening
4.Ward Orientation	12.Physical Assessment
5.Safety Valuable	13.Fall Assessment
6.Psychological Status	14.Discharge planning
7.Psychosocial status	15.Vulnerable group
8.Socioeconomic Status	



	MEAN	VARIANCE	STANDARD DEVIATION
2014	99.26	38.54	6.21
2015	94.27	233.77	15.29

Indicator 1.3: Percentage of Nursing Care Plan completed on discharge

Month	2015			2014		
	Total Admission	Ncp Completed In 24hours	Percentage	Total Admission	Ncp Completed In 24hours	Percentage
Jan	1427	1427	100	1162	1162	100
Feb	1237	1237	100	1196	1196	100
Mar	1432	1432	100	1327	1327	100
Apr	1331	1331	100	1341	1341	100
May	1452	1452	100	1368	1368	100
Jun	1398	1398	100	1413	1413	100
Jul	1326	1319	99	1218	1218	100
Aug	1389	1370	99	1346	1346	100
Sep	1348	1330	99	1282	1282	100
Oct	1370	1370	100	1324	1324	100
Nov	1329	1327	99.8	1322	1322	100
Dec	1403	1403	100	1374	1374	100



	MEAN	VARIANCE	STANDARD DEVIATION
2014	100	0	0
2015	99.73	2.155	1.468

1.4: Percentage of discharge summary to be completed within 72 working hours of discharge

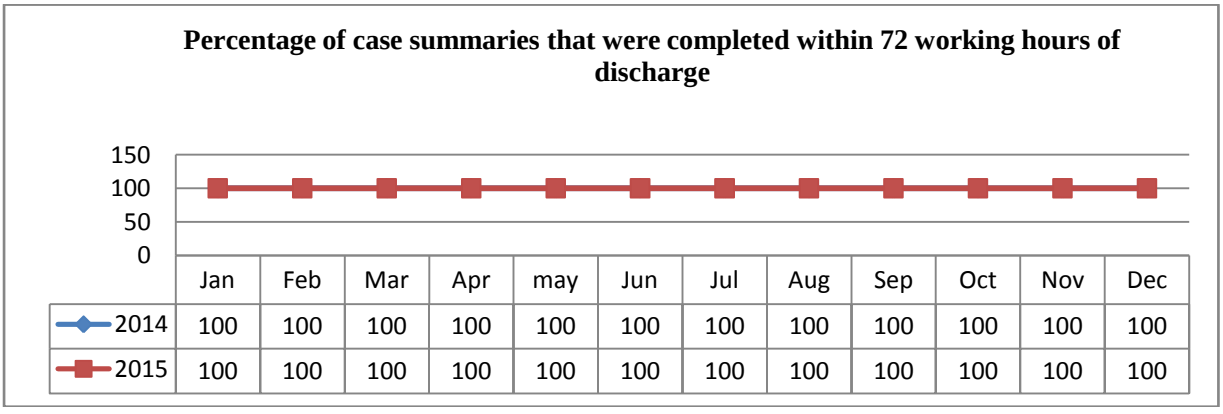
Table 1: Number and percentage of discharge summary to be completed within 72hours

Year	Total Discharge	Discharge summary completed within 72 hours	Percentage
2014	15594	15594	100%
2015	16367	16367	100%

	MEAN	VARIANCE	STANDARD DEVIATION
2014	100	0	0
2015	100	0	0

Table 2: Percentage achieved from January 2014 till December 2015

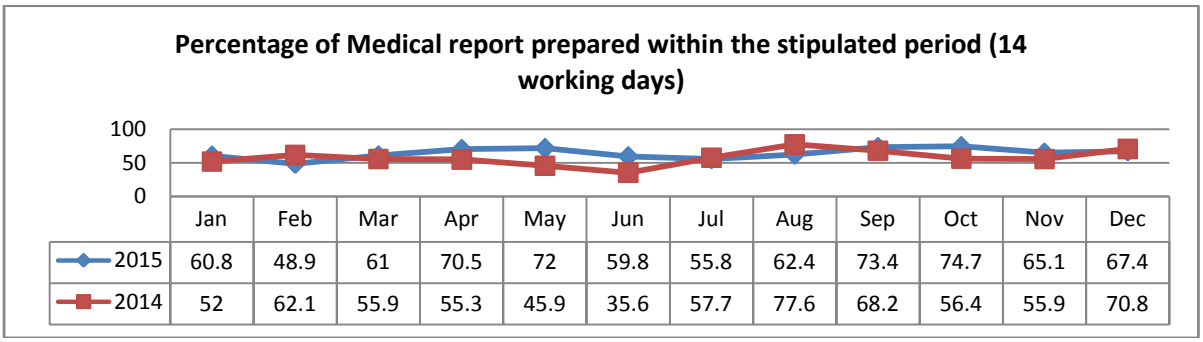
Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014 (%)	100	100	100	100	100	100	100	100	100	100	100	100
2015 (%)	100	100	100	100	100	100	100	100	100	100	100	100



	MEAN	VARIANCE	STANDARD DEVIATION
2014	100	0	0
2015	100	0	0

Indicator 1. 5: Percentage of Medical report prepared within the stipulated period (14 working days)

Year/Month	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
2015 (%)	60.8	48.9	61.0	70.5	72.0	59.8	55.8	62.4	73.4	74.7	65.1	67.4
2014 (%)	52	62	56	55	46	36	58	78	68	56	56	71



	MEAN	VARIANCE	STANDARD DEVIATION
2014	57.83	1357.67	36.85
2015	64.32	655.36	25.60

V. DISCUSSION

Hospital A measures two set of indicators to check the compliance on legal and authority requirements and the achievement for improvement of work process and work flow. Performance measurement will enable an organization to improve and continuous learning for better results. The organization can track the progress by measuring performance and learn new ways to achieve better results (bridespan.org). Indicators were considered as self- report on the compliance to the set target. As stated by Parker (2012), indicators show measures of compliance to variety of process measures of systems and implementation including reviews of various targets set by various services in the organization.

Four indicators were selected to monitor the compliance to legal and authority requirement consisting of indicators related to breatfeeding, release of bodies to next of kin, number of staff with BLS certificate and the in service training for nurses. For indicator number 1 which is related to the initiating of breastfeeding for new borne babies, the set target for 2014 was 85% and this target was increased to 90% in 2015. In 2014, the objective was achieved from January to December where the highest target was 100% achieved in December 2014. The Mean was 88.90 with the standard deviation of 15.24 in 2014. With the increase of target to 90% in 2015, the objective was only achieved in March, May, June, September, November and December 2015 with a Mean of 88.65 which is slightly lower than 2014 and the standard deviation of 16.29 which is slightly bigger than 2014. This had indicated a wider variation in term of achievement for 2015.The two main reasons for not achieving the target were due to babies and mothers conditions do not permit the initiating of breastfeeding due to babies not crying well and low Apgar score .

For indicator number 2 which is the number of wrong bodies released to next of kin, the compliance was 100% for both years. This indicator reflex the efficiency of the mortury service .

Indicator number 3 is to ensure 100% of KPJ Penang staff to have BLS certificate which reflex the competency of their basic life skills. Based on the data collected in 2014, the achievement ranges from 82% to 93% with the highest achievement in April 2014. The Mean for 2014 was 88.30% with the standard deviation of 11.52. In 2015, the achievement ranges from 93% to 98% with the highest achievement in November 2015. The Mean was 94.75% with the standard deviation of 5.68 showing the performance of 2015 was far better than 2014. The objective of getting 100% compliance was not achieved for both years because some staff failed to attend the training due to tight schedule.

For indicator number 4 which is to ensure 60% trained nursing staff attended in-service training monthly, the objective was achieved throughout year 2014 except for March with only 51% achievement. The achievement ranges from 60% to 73% with the highest achievement recorded in February 2014. The Mean for 2014 was 62.50 with the standard deviation of 11.52. For the whole year of 2015, the target was achieved ranging from 61% to 99% with the highest achievement in December 2015. The mean for 2015 was 69.92% with the standard deviation of 40.28 indicating a better performance of 2015 compared to 2014. However due to bigger standard deviation, there was a bigger variation in term of achievement in 2015 compared to 2014.

In summary for indicators related to compliance on legal and authority requirement, Hospital A was able to achieve the target in 2014 but failed to do so in 2015 due to the increase of target from 85% to 90% in 2015. The second indicator was fully achieved for both years where no reported incident of handing wrong body to next of keen. The third indicator of achieving 100% BLS training was not achieved for both years due to the busy schedule of staff. For the last indicator, the target of 60% of trained staff attending CME was fully achieved in 2015 except for a few months in 2014 .

For improvement of work process and work flow, the indicators monitored were related to the completeness of records which are sub divided into the following indicators:

- 95% of case notes audited comply to medical record criteria
- Completeness of Initial Nursing Assessment for inpatient
- Percentage of Nursing Care Plan completed on discharge
- Percentage of case summaries that were completed within 72 working hours of discharged
- Percentage of Medical report prepared within the stipulated period (14 working days)

Indicator number 1 which is 95% of case notes audited comply to medical record criteria is further sub divided into the following indicators:

- Patient and family right
- Patient and family education
- Assessment of patient
- Anaesthesia and surgical care
- Management of information
- Care of patient
- Access and continuity of care

For completeness of medical record related to Patient and family right, the target of 95% for 2014 were only achieved in November and December. The achievement ranges from 80% to 98.3% with the highest achievement in December 2014. The Mean for 2014 was 87.33% which is far below the target with the standard deviation of 17.74. A bigger standard deviation reflects a larger variation of achievements throughout 2014. The performance of 2015 was much better compared to 2014 where the target of 95% was achieved throughout 2015 ranging from 98.8% in January to 100% in February, April to June and October to December 2015. The Mean for 2015 was 99.83% with the standard deviation of 1.53 reflecting a better achievement in 2015 compared to 2014 with a smaller variation of outcome compared to the previous year of 2014. Factor that contributes to this issue is that orientation of patient was not done by nurses upon arrival in the ward.

For patient and family education, the target of 95% was achieved only in the month of June and from October to December 2014 whereas for 2015 the target was achieved throughout the year except for January, February and June 2015 with the lowest achievement of 97.3% in January 2015. The Mean for 2014 was 93.78 with the standard deviation of 14.03 and for 2015 the Mean was 99.66% with the standard deviation of 2.72. The mean reflected a better achievement for 2015 compared to 2014 with a bigger fluctuation of data in 2014 with a bigger standard of deviation compared to 2015. The performances of 2015 were much consistence when looking at the smaller standard deviation of only 1.53. The main contributing factor for the lower percentage of compliance isthe failure of nurses to assess literacy and education level of patient before giving the education.

The target of 95% achievement for assessment of patient was not achieved throughout 2014 with the performance ranging from 70% in July to 88.5% in May 2014. However the performance was far better in 2015 ranging from 78% in February to 96% in December 2015. The target of 95% was achieved from June to September and December 2015. The Mean for 2014 was 79.3% with the standard deviation of 20.54 and the Mean for 2015 was 91.07% with the standard deviation of 22.18. From the Mean we can see a better performance recorded in 2015 compared to 2014. However the standard deviation for both years is more or less the same with a bigger variation of data for both years. The two contributing factors for the failure to achieve the target of 95% for both years arethe incomplete initial assessment including nutritional status and discharge planning and incomplete triage at emergency services .

In term of anaesthesia and surgical care, the target of 95% completeness of record was achieved for the whole year of 2014 except for February and November with the achievement of 94.5% and 94.7% respectively. The performance ranges from 94.5% in February to 98.3% in March 2014. For 2015 the target was achieved throughout the whole year ranging from 96.5% to 98.7%. The Mean for 2014 was 96.04 with the standard deviation of 3.603 compared to 2015 with the Mean of 97.33 with the standard deviation of 1.898. Therefore the

performance for 2015 was better compared to 2014 with smaller variation in 2015. The main factors contributing to non-compliance are blood loss and complication of surgery.

For the indicator of medication management and use, the target of 95% was not achieved throughout the year of 2014 with the achievement ranging from 70.9% to 79.2%. The Mean for 2014 was 88.56 with the standard deviation of 3.34. For 2015, the target was achieved from October to December 2015 ranging from 74.6% in April to 98% in November .The Mean for 2015 was 85.53 with the standard deviation of 22.48. Therefore the performance of 2015 was much better compared to 2014 with a better Mean. However there was a bigger variation of data as shown by a larger standard deviation in 2015.Most of non-compliances for MMU were the reconciliation process not completely done, incomplete medication prescription and High Alert Medication (HAM) protocol not being followed.

The target of 95% compliance for management of information was not achieved at all for the whole year of 2014. The achievement ranges from 70.2% in July to 79.2% in June 2014. The Mean for 2014 was 74.23% with the standard deviation of 9.80. For 2015, the target was achieved from October to December .Data ranges from 80% in February to 96.8% in October 2015. The Mean for 2015 was 85.53 with the standard deviation of 25.56. Therefore the performance of 2015 was much better than 2014 but a bigger variation of data as shown by the standard deviation. The main contributing factors for non- compliance are the date and time were not consistently being written by the consultant, eligibility of hand writing of Consultants and the use of non- approved abbreviation.

For care of patient, the target of 95% was achieved for the whole year of 2014 with the data ranging from 95% to 100%. The Mean was 98.85% with the standard deviation of 5.10. For year 2015, the compliance was much better with 100% achievement throughout theyear except for May, October and November. Data ranges from 98.3% to 100% with the Mean of 99.54 and standard deviation of 2.82. Therefore the performance of 2015 was much better than 2014 with a smaller variation of data in 2015 as shown by the standard deviation.
Under access and continuity of care, the target of 95% was not achieved for the whole year of 2014 except for December. Data ranges from 60% in July to 95.8% in December 2014. The Mean for this year was 76.38% with the standard deviation of 38.15. For 2015, the data ranges from 94.9% in October to 100% for July, August and September 2015. The mean for this year was 98.06 which is much superior compared to 2014 and the standard deviation was 5.51 which is much smaller than 2014. Therefore the variation of data for 2015 was smaller compared to year 2014. Most of the non-compliances were the incomplete discharge summary and documentation of internal transfer care.

The overall compliance on completeness of patients' medical records had improved from 2014 to 2015. Continuous education and awareness will be provided to staff in order to achieve better compliance in 2016.The outcome of the audit will be shared in various meetings so that relevant parties are aware of the outcome. Letter of appreciation will be given to the consultants for their compliance but reminder letter will be issued for non-compliance.Approved abbreviation was revised for reference and was endorsed by Medical Record Committee.

In summary for the first indicator related to improvement of work process and work flow, the set target was fully achieved as follows:

a. patient and family right: fully achieved in 2015
b. patient and family education: fully achieved in 2015
c. assessment of patient : not achieved for both years of 2014 and 2015
d. anaesthesia and surgical care: fully achieved in 2015
e. medication management and use: not achieved for both years of 2014 and 2015
f. management of information: not achieved for both years of 2014 and 2015
g. care of patient: fully achieved for both 2014 and 2015
h. access and continuity of care : fully achieved for 2015 except for the month of October

For indicator number 2 : completeness of initial nursing assessment for inpatient, the compliance will be measured based on the 15 criteria as follows: general consent, vital sign, pain score, ward orientation, safety of valuable, psychological status, psychosocial status, socioeconomic status, sleeping/rest pattern, functional status, nutritional support and risk screening, physical assessment , fall assessment, discharge planning and vulnerable group. The Mean of data for 2014 was 99.26% ranging from 93.5% to 100% with the standard deviation of 6.21. The performance in 2015 was much lower compared to 2015 with the Mean of 94.27% with a bigger variation of data as shown by the standard deviation of 15.29. Therefore the performance had deteriorated in 2015 compared to 2014. The main contributing factors are the presence of new staff, lack of assessment knowledge and skill of staff and high turnover of nurses. Therefore fully compliance was not achieved for both years

For indicator number 3: percentage of nursing care plan completed on discharge, the performance was 100% in 2014 but for 2015, target was not achieved from July to September and in the month of November. The Mean for 2015 was 99.73% with the standard deviation of 1.47. Therefore year 2014 was much better compared to 2015. The main contributing factors are new staff with insufficient knowledge on the use of Clinical information system. Therefore full compliance was achieved in 2014 but not achieved for 2015.

Percentage of discharge summary to be completed within 72 working hours was chosen as indicator number 4. For both years of 2014 and 2015, the compliance was 100%.

For indicator number 5: percentage of medical report prepared within the stipulated period of 14 working days, the target was not achieved for both years due to the un-availability of the consultants within the stipulated time and increased number of medical report to be completed every month. For 2014, data ranges from 36% to 78% with the Mean of 57.83. In 2015, data ranges from 48.9% to 74.7% with the Mean of 64.32 which is slightly better than 2014. Standard deviation for 2015 was slightly lower than 2014 which is 25.60 compared to 36.85 indicating a smaller variation of data. Follow up call and official letter to remind the consultants on the outstanding report were done by the medical record staff in order to improve the compliance. Therefore full compliance was not achieved for both years.

By measuring various indicators, the management will know the status of compliance and reasons for non- complying to the set target. Planning can be done to achieve the set target. This is in line with what had been stated by Slater and Olson, 1997 which specifically mentioned on the reason to measure indicators to determine when to shift behaviour in order to achieve the set goals. A change of input and process is necessary rather than shifting behaviour. (Senge, 2006) . Measurement is an accepted part of the PDCA process which are widely used in the health and safety management system. Indicators track the record and underlying problems as well as other values of concern. Indicators will account for availability of quality data, attention that need to be directed and identified to measure the performances. (Metzembaum, 1998). Improvement can also be done through gathering various data in the healthcare system so that managers and quality assurance can assess the performance of those services against agreed target (qihub.scot.nhs.uk)

VI. CONCLUSION

Hospital A measures various indicators for legal and authority compliances and the improvement of work process and work flow. Four indicators are monitored for legal and authority compliances and eleven indicators for the improvement of work process and work flow. Indicators for legal and authority compliances consisting of breastfeeding, release of bodies to next of kin, BLS certificate and in-service training for nursing staff. In term of the improvement of work process and work flow , indicators are related to completeness of records for case notes, initial nursing assessment for inpatient, nursing care plan on discharge, case summaries completed within 72 working hours of discharge and medical report prepared within 14 working days. The completeness of case notes according to the medical record criteria is further sub divided into patient and family right, patient and family education, assessment of patient, anaesthesia and surgical care, medication management and use, management of information, care of patient and access and continuity of care. All indicators were monitored for both years of 2014 and 2015 and had been reported and tabulated accordingly. Data were analysed and trending for year 2014 was compared with year 2015. For indicators related to compliance on legal and authority requirement, Hospital A was able to achieve the target in 2014 but failed to do so in 2015 due to the increase of target from 85% to 90% in 2015. The second indicator was fully achieved for both years where no reported incident of handing wrong body to next of keen. The third indicator of achieving 100% BLS training was not achieved for both years due to the busy schedule of staff and for the last indicators, the target of 60% of trained staff attending CME was fully achieved in 2015 except for a few months of not achieving in 2014.

For the first indicator related to improvement of work process and work flow, the set target was fully achieved as follows: patient and family right was fully achieved in 2015, patient and family education was fully achieved in 2015, assessment of patient was not achieved for both years of 2014 and 2015, anaesthesia and surgical care was fully achieved in 2015, medication management and use was not achieved for both years of 2014 and 2015, management of information was not achieved for both years of 2014 and 2015,care of patient was fully achieved for both 2014 and 2015 and access and continuity of care was fully achieved for 2015 except for the month of October. For indicator number 2 related to completeness of initial nursing assessment for inpatient, the target was not achieved for both years. For indicator number 3 related to the percentage of nursing care plan completed on discharge, the performance was 100% in 2014 but for 2015, target was not achieved

from July to September and in the month of November. For indicator number 4 related to the completeness of report within 72 working hours, the compliance was 100% for both years.

For indicator number 5 related to the percentage of medical report prepared within the stipulated period of 14 working days, the target was not achieved for both years of 2014 and 2015 due to the un-availability of the consultants within the stipulated time and increased number of medical report to be completed every month.

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