Value for Money Assessment

Colchester East Hants Health Authority (DHA 4)

Final Report February 10, 2004

1. Introduction

Colchester East Hants Health Authority (CEHHA) provides acute care health services through Colchester Regional Hospital(CRH)in Truro and Lillian Fraser Memorial Hospital(LFMH) in Tatamagouche. Public Health and Addiction Services are shared with DHA's 5 and 6. CRH has the only psychiatric inpatient unit in the former Northern Region that can care for certified patients. 5 veterans' beds are provided in CRH as part of a medical unit.

The population of the district in 2002 was 73,581. However, a portion of the East Hants population regularly uses health services in Capital District. An adjusted figure of 53,211 is considered to reflect the CEHHA market share for secondary services that takes into account inflow and outflow. It is based on separation data and is used to adjust the inpatient acute care service population. Community based programs such as outpatient mental health, public health, primary health care, etc are provided to the full district population.

In addition to a strong family physician base the district has specialists in general surgery, ophthalmology, urology, obstetrics and gynecology, ENT, anesthesia, internal medicine, pediatrics, pathology and radiology.

CEHHA was surveyed in early 2002 by CCHSA and received accreditation with report. The report described the district as having a "strong quality culture", including use of evidence and best practice information to continuously improve. Areas of risk identified were related to physical facilities including some fire safety issues and particularly identified the environment for geriatrics as an issue. Fire safety issues are being addressed and the district has received DOH approval to proceed with site selection and functional program preparation for a new hospital on a new site.

CEHHA participates in shared administrative services including finance, human resources, information systems and materials management as well as shared community services in Public Health and Addictions with DHA's 5 and 6. CEHHA also provides management of health registration services and CSPD in District 5.

The approved budget for 2003/04 is $ 47.9 million, up from $ 42.7 million in 2002/03. This includes $ 40.9 million in DOH funding with the remainder coming from other sources such as preferred accommodations and hospital auxiliaries. Over 80 % of this is portable for acute care purposes, but oncology, mental health, public health, addiction

services and biomedical waste have non- portable budgets. CEHHA is projecting a deficit in this fiscal year and has undertaken a number of initiatives to mitigate the situation. However, Government determined that an independent assessment should be undertaken to determine whether the organization was performing as well as should be expected and whether there was opportunity for improved financial performance. Virginia MacDonald, in association with KPMG, LLP, was engaged to undertake the review. This report presents our findings. It is based on the following:

- Review of clinical, statistical and financial performance indicators provided by the Department of Health

- Review of background documents provided by CEHHA and DOH (listed in Appendix C)

- On- site visits in which senior management, managers, physicians and board members were interviewed and selected facilities toured (listed in Appendix D)

- Discussions with DOH personnel and Steering Committee members

The Terms of Reference for the review are included as Appendix B.

The study was conducted with the guidance of the Steering Committee comprised of the following members:

Cheryl Doiron, Associate Deputy Minister, Department of Health
Tom Ward, Deputy Minister of Health
David Rippey, Executive Director, QEHS/HP, Department of Health
Byron Rafuse, Chief Financial Officer, Department of Health
Janet Knox, Executive Director, Acute Care, Department of Health
David Perry,Senior Corporate Financial Analyst, Treasury and Policy Board
Peter MacKinnon, CEO, CEHHA (DHA 4)
Patrick Flinn, CEO, PCHA (DHA 6)

In the report that follows we will use DHA 4 and CEHHA interchangeably to refer to the district under study.

2. Limitations

The reviews of both DHA 4 and DHA 6 were undertaken during a 2 month period from October 15 to Dec 15, 2003. This timeframe permitted only a high level review of the most costly areas of the operations. DOH and DHA staff were extremely cooperative in providing information within this very tight timeframe. However, due to a number of data quality issues, a significant amount of time was spent simply clarifying the data. This was considered to be a very valuable learning experience for all parties as the information had not been used in this way before.

Caution should be used in interpretation of the benchmark information found in Appendix A as it is still a work in progress. A number of data quality issues have been identified during the course of our work. When identified we have then corrected them where possible for the DHA's being studied. The issues have been primarily in the statistical rather than financial reporting, although some internal cost allocation issues have been noted. We have been advised that DOH is confident of the total financial reporting, but the allocation between cost centres may not be reported consistently across all districts. In addition, we have found some examples within the DHA's under review of costs being allocated to one cost centre and workload being allocated to another. We need, therefore, to be careful to understand both differences in reporting and differences in practice when interpreting comparisons between DHA's.

It should also be noted that at the outset of this work it was determined that interprovincial comparisons would not be helpful due to significant variations in reporting and structures. Also, year to year comparisons, even within Nova Scotia, were not helpful due to the newness of the MIS and problems encountered with data quality in 2001/02. With a few exceptions we therefore used 2002/03 post audit data for benchmarking purposes. 2003/04 data was not available at the time of our review.

All parties agreed that comparisons should be made across DHA's1-7 as they are more or less similar, with some exceptions, in services offered (except for orthopedics in DHA's 3 and 6 and vascular surgery in DHA 3). DHA's 8 and 9 have not been included in our comparisons at the macro level due to significant differences in the scope of their services. However, selected services from either or both of these should be included in future comparisons in order to better understand DHA performance.

An additional point to consider in reviewing the benchmarks is that all information reflects only services provided in Nova Scotia. In particular, residents of DHA 5 use Moncton, NB for a significant amount of secondary care ($ 4.7 million). Volumes and costs related to this care are not reflected in this information. For true comparisons involving DHA 5 residents, this information would need to be added. We understand arrangements are in place to share this information.

Patient volume information is derived from the CIHI system to which the province subscribes. The information reports inpatient acute care information and day surgery based on abstracts from charts submitted by each hospital. Although the system is well

established, changes in the coding system and variations in physician and hospital reporting practices also indicate a need to use caution in interpreting information. In particular, RIW (Resource Intensity Weights) and recording of ALC (Alternate Level of Care – or not requiring acute care) are problematic.

Recommendation: The DOH should continue to work with the DHA's to develop decision support resources including software and personnel with the appropriate skills to improve the accuracy and usefulness of the various databases in order to improve the quality of management decision making at both DOH and DHA levels.

3. Executive Summary

Colchester East Hants Health Authority (CEHHA, also known as DHA 4) provides acute care health services through Colchester Regional Hospital (CRH) in Truro and Lillian Fraser Memorial Hospital in Tatamagouche. Public Health and Addiction services are shared with DHA's 5 and 6. This DHA serves the second largest population of the seven DHA's compared (excluding Capital and Cape Breton). A number of administrative support services are shared with DHA's 5 and 6. The approved budget for 2003/04 is $ 47.9 million, of which 40.9 is Department of Health funding. CEHHA is projecting a deficit of over $ 800,000 for this year and has undertaken a number of initiatives to mitigate the situation. However, Government determined that an independent assessment should be undertaken to determine whether the organization was performing as well as should be expected. The Terms of Reference for the review are included in Appendix B.

The review began with the preparation of macro benchmarks to compare the performance of DHA's 1-7. These benchmarks are included as Appendix A. They need to be used with considerable caution since a number of data quality issues were identified during the review. It is quite probable that there are others we did not find.

Recommendation: The DOH should continue to work with the DHA's to develop decision support resources including software and personnel with the appropriate skills to improve the accuracy and usefulness of the various databases in order to improve the quality of management decision making at both DOH and DHA levels.

DHA 4 has the lowest direct care cost per inpatient medical/surgical/pediatric day of the seven districts compared. The district continues to find ways to improve cost-effectiveness and is increasing its use of LPN's. A serious shortage of nursing home beds in the district is having a significant impact on the availability of acute care beds in both DHA 4 and DHA 6.

Recommendation: The DOH and CEHHA should review the need for continuing care services within the district and address gaps as soon as possible. A comprehensive plan for the continuum of continuing care services including nursing home beds, home care and other models of care such as assisted living should be developed.

Surgical services at CRH are limited by antiquated physical facilities which will be corrected when the new hospital opens. However, since the new hospital will not be open for about five years, CEHHA should explore options for improving day surgery facilities in the existing facility. In addition, there are concerns about the comparability of the indicators for surgical services and time did not permit resolving these within this review process.

Recommendation: A further review of surgical services should be undertaken to develop comparable benchmarks for at least DHA's 1-7, and preferably to include DHA 8.

Mental health services have been expanded with the addition of 3 inpatient beds and outpatient staff. However, wait lists continue to be long and infrastructure costs remain unfunded.

Recommendation: As resources permit, investments should continue to be made in community based services and in particular, mental health. Investments should include not only personnel but also the related infrastructure costs.

Laboratory costs in CEHHA are in the upper range in terms of cost per patient day but reporting inconsistencies between DHA's make comparisons not useful.

Recommendation: The DOH, in cooperation with the DHA's should develop standardized reporting and benchmarks to facilitate comparisons of performance.

In diagnostic imaging DHA 4 performs well with the direct cost per exam/procedure being second lowest of the seven DHA's. However, there appear to be reporting inconsistencies within this group as well.

Recommendation: The DOH and DHA's should work together to develop consistent reporting and benchmarks to facilitate inter DHA comparisons. This recommendation also applies to medical surgical supply and drug costs.

Administration costs as a percentage of total costs are second lowest in DHA 4. Management is quite lean and may need to be enhanced in a number of areas including decision support, patient care management and human resources. Planning for the new hospital will require dedicated resources.

Overall, CEHHA is performing very well in comparison with its peers and uses its resources wisely. It appears to be underfunded relative to its peers and has been unable to develop significant new programs to meet identified needs.

Recommendation: CEHHA should be considered for additional targeted DOH funding for both clinical and administrative resources when money is available.

The DOH has indicated its intent to develop a funding formula that would provide fair, equitable and transparent funding to the DHA's. This is an excellent initiative but it will require accurate information, will take time and money to develop, and experience from other jurisdictions shows may be difficult to implement. Nevertheless it should be done.

Recommendation: The DOH should proceed to develop a funding formula that will promote fair, equitable and transparent funding allocation to all districts. In preparation for this initiative the DOH and DHA's should continue to improve data quality as accurate data will be essential to funding formula development and implementation.

4. Overview of clinical services

Appendix A provides a number of high level benchmarks to assist us in understanding the services provided by CEHHA and how the district performs relative to other similar DHA's within Nova Scotia. Appendix E includes some additional indicators. In the following sections we will refer to a number of these benchmarks.

DHA 4 is the second largest of the seven DHA's with a population served of 73,581. The adjusted population of 53,211, still makes it second largest. Its proportion of those aged 65+- those who use hospital services the most- is lowest of the seven districts. However, Colchester County has a higher proportion of those over 75 than DHA's 3 and 7. East Hants on the other hand has a very young population.

Despite being the youngest district, DHA 4 residents use more separations per thousand population (ie inpatient discharges and deaths) than districts 1 and 3. However, they use less than the remaining four districts. Average length of stay at 6.8 days is similar to DHA's 3 and 5, and shorter than DHA's 1, 2 and 7. It should be noted that this information includes all hospitalizations for residents of DHA 4 within any DHA in Nova Scotia. Hence these rates do not directly correlate to the performance of DHA 4.

4.1 Medical services

Medical services includes medical, surgical and pediatric inpatient units. In 2002/03, CEHHA incurred direct costs of $ 5,634,575 and provided 25,474 patient days. Direct care costs per inpatient day of $221.19 are lowest in DHA 4 of all these districts. Earned hours per patient day are similar in districts 4-7 and lower than districts 1-3. UPP worked hours are the second lowest of the seven districts. Without a standardized workload measurement system we are unable to judge whether the amount of care being delivered is appropriate. However, relative to other districts this is a low cost care provider.

One of the ways in which hospitals have been addressing nursing shortages as well as reducing costs is to adjust the RN to LPN ratios by using LPN's to their full scope of practice. In 2002/03, DHA 4 used the second lowest proportion of LPN's compared to other districts. However, they have been making significant changes in this regard over the past year and we expect to see a difference this year.

Another measure of productivity and costs is the ratio of earned hours to worked hours. This ratio can identify whether there is excessive use of overtime and sick time requiring premium rates. For inpatient services DHA 4 had a ratio of 1.21 which is similar to DHA's1, 2, and 5, but higher than DHA 6. Although we do not have specific data from other jurisdictions, this ratio is not out of line with what we have seen in other provinces recently.

The most recent collective agreement for nurses contained a clause that permitted part time staff to claim overtime if the hours exceeded their existing arrangement. Since this district had traditionally relied on part time staff, this change resulted in increased costs.

Management is working through this issue and converting part time positions to full time as quickly as possible.

4.2 Availability of licensed nursing home beds

DHA 4 has the lowest ratio of nursing home beds for the population 75 + of all districts in the province. Although the district is a high user of home care, the shortage of licensed nursing home beds is causing a serious problem, not only for DHA 4 but now also for DHA 6. This shortage results in the following inefficiencies and inappropriate care:

- Patients awaiting a nursing home bed are occupying acute care beds at the hospital per diem cost which is significantly higher than the per diem cost of a nursing home bed.

- The acute care environment is inappropriate for long stay patients, especially in an outmoded hospital such as Colchester Regional.

- Since beds are occupied by long stay patients, other acutely ill patients needing those beds cannot be accommodated. As a result, patients stay in a more costly ICU bed awaiting transfer to a medical bed, medical patients are admitted to a surgical bed where nursing staff are more expert in treating surgical cases and patients wait in the ER, which is clearly an inappropriate place to stay once the requirement to admit has been determined. All these factors then lead to increased overtime because additional staff are required for 1:1 observation of some of these very ill patients.

- The shortage of licensed nursing home beds is now also affecting neighbouring DHA's. DHA 6, which has a high ratio of nursing home beds, is now receiving residents of DHA 4. Now the DHA 6 nursing home beds are full and the Aberdeen Hospital is becoming backlogged as well.

- Patients who are waiting to return from Halifax or New Glasgow wait longer to return to their home hospital. This puts further pressure on these hospitals and usually at a higher cost per diem.

- Patients are constantly being moved, even during a short stay. This is costly, detracts from quality of care and is a serious infection control issue.

This is the most serious value for money issue we encountered during the review. It simply makes no economic or care delivery sense to be treating patients in acute care beds when they need a nursing home bed. Furthermore, with the aging of the population, this problem will continue to become more and more acute unless action is taken soon. This district also has limited availability of other supportive living environments for frail elderly such as assisted living, enriched housing and

congregate living. The district and DOH should place priority on finding both short and long term solutions.

As a temporary measure, management is exploring whether to consolidate patients awaiting placement on a single unit. This would allow a change in the staffing model and could improve programming somewhat for these patients. However, it will not address the underlying issue which is the shortage of licensed nursing home beds. On average, 15 out of 47 medical beds are being occupied by these patients, so almost 1/3 of the acute medical beds are effectively out of service.

Recommendation: The DOH and CEHHA should review the need for continuing care services within the district and address gaps as soon as possible. A comprehensive plan for the continuum of continuing care services including nursing home beds, home care and other models of care such as assisted living should be developed.

4.3 Surgical Services

Surgical services are another high cost service in hospitals. In 2002/03, CRH reported direct costs of $ 2,603,980 and a total of 5558 cases. This results in a cost per case of $ 468.51. However, during our review it was discovered that CSPD and Recovery Room costs were included in OR costs at CRH. We believe those costs are separate in other districts. If we back out these costs, the revised cost becomes $ 2,175,032. This reduces the cost per OR visit to $ 391.33. DHA 4 was then about in the middle of the direct cost per OR visit. DHA 4 should reflect a low cost per case compared to those hospitals which perform endoscopies outside the OR such as DHA 1. Only during the current fiscal year did a separate endoscopy suite become available at CRH. Also, the ratio of earned hours to worked hours per OR visit was highest of all DHA's reporting. This may indicate a higher use of premium hours than in other districts. However, there are some data quality issues here and the scope of our review did not include a detailed review of other DHA's. We are therefore unsure whether there is room to improve the performance of CEHHA in surgical services.

The physical facilities of the Colchester Regional Hospital also place serious limitations on maximizing efficiencies. An area where this DHA is challenged is in conversion of procedures to ambulatory care. The day surgery area occupies 2 converted inpatient bedrooms which results in staffing inefficiencies. Some procedures are done in the OR that could be done in a less costly setting if appropriate procedure rooms were provided in ambulatory care.

These issues will all be addressed in planning for the new hospital. However, given the number of years before the new hospital will become available, management will explore options for improving efficiency and utilization of surgical resources. It has established a position of director of ambulatory care to lead the development of ambulatory care services and we view this as a positive initiative.

Management is exploring the potential to use OR technicians (ORT's) who are paid at a much lower rate than RN's. However, there is currently no training program for ORT's in the province, the closest one being Moncton, when it is available. After hour surgery is monitored regularly by management and the care team and issues are addressed as they arise. An issue for surgical services here is how to ensure adequate volumes to retain 3 anesthetists. The district is attempting to recruit urologists to replace the urologist who is almost retired.

Recommendation: A further review of surgical services should be undertaken to develop comparable benchmarks for at least DHA's 1-7, and preferably to include DHA 8 . In the meantime, CEHHA should explore options for improving its day surgery facilities.

4.4 Mental Health, Public Health and Addiction Services

Mental Health, Public Health and Addiction Services are non- portable budgets and have received some increased staffing approvals. However, infrastrucure costs are not funded. CEHHA has found the need to rent space for services to the growing population of East Hants but has had to take money from its portable acute care funding to subsidize the non-portable programs. In addition, CEHHA has no dedicated Medical Officer of Health with the result that other staff have to perform this role where possible.

Mental health services continue to be an issue. Inpatient beds were increased from 12 to 15 in June of this year in an attempt to address a recognized need. In 2002/03, a number of mental health patients were admitted to medical beds with costly one to one staffing. It is expected the opening of the additional beds will reduce these costs substantially. Mental health outpatient services continue to have waiting lists that are too long and some of these patients end up in crisis, requiring more costly care. Note that DHA 4 has the second highest percentage of population age 12 + with a 90 % probability of clinical depression. This suggests a high need for service.

Recommendation: As resources permit, investments should continue to be made in community based services and in particular, mental health. Investments should include not only personnel but also the related infrastructure costs.

5. Clinical Support Services

5.1 Laboratory services

Total reported direct laboratory costs were $ 3,074,253 for a total of 1,290,509 in-house procedures in the District Hospital. Lab costs per patient day in DHA 4 are at the higher end, exceeded by only DHA's 3 and 6. However, inpatient work represents only 16 % of the total workload. Average inpatient units per patient day are 17.16, third highest after DHA's 3 and 6. The UPP worked productivity index is second lowest. However, the ratio of earned to worked hours is lowest at 1.17, suggesting that premium hours are not a major issue. There may be opportunities to improve both utilization and productivity.

However, reporting inconsistencies between districts are just now being addressed. Furthermore, the majority of lab work is for outpatients, so use of a per patient day cost is not especially relevant. We therefore calculated the direct cost per capita (adjusted). DHA 4 is about in the middle, at $ 57.77 compared to a low of $ 40.77 in DHA 3 and a high of $ 75.79 in DHA 6. If, however, the unadjusted population of 73,581 is used, the per capita expenditure becomes $ 41.78, only slightly above the lowest district. Furthermore, districts vary in the number of locations in which labs are operating, and we have only compared district hospitals.Also, the effect of laboratory revenues has not been considered in these numbers.

A factor affecting laboratory costs is referred out work. Due to a shortage of reagent supplies for some tests, the district has been forced to refer tests to Halifax. The costs, which are generally about double the cost of the in- house test, are charged back to DHA 4. The actual cost implications of this require further study.

Recommendation: The DOH, in cooperation with the DHA's should develop standardized reporting and benchmarks to facilitate comparisons of performance.

5.2 Diagnostic Imaging

Diagnostic Imaging services are well equipped and an excellent travelling mammography service has been established. Wait lists are short, film costs have been reduced with the introduction of PACS and the radiologists act as gatekeepers for after hour and special services.

DI expenditures in the district hospital were $ 1,735,282 .DI direct costs per exam in the district hospital were second lowest of the five DHA's reporting at $30.96. Only the Aberdeen Hospital costs at $ 30.17 were lower. Exams per thousand adjusted population were lowest at 1053 per thousand. The result is that cost per thousand adjusted population is $ 32.61, again second lowest. The DOH is attempting to validate numbers in some districts. We need to look more closely at all work performed in the districts before drawing conclusions.

Recommendation: The DOH and DHA's should work together to develop consistent reporting and benchmarks to facilitate inter DHA comparisons.

5.3 Medical surgical supply costs

Medical surgical supply costs of $ 1,565,700 million are higher per patient day than three DHA's, but lower than DHA's 3, 6 and 7. We would expect these to be lower than DHA's 3 and 6, but in line with other DHA's. Recently DHA 4 has joined HealthPro, a group purchasing organization. This initiative may help to reduce supply costs.

Recommendation: Medical surgical supply costs should be examined as part of the surgical services review recommended in section 4.3 and more detailed benchmarks developed.

5.4 Drug costs

Drug expenditures were $ 1,394,261.Inpatient drug costs per patient day at $ 27.56 are at the lower end of the seven district hospitals, compared to a low of 25.45 in DHA 2 and a high of 31.94 in DHA 7. The district has considered establishing a drug utilization pharmacy position. We support this initiative as it would likely improve both quality and cost effectiveness of this service. However, major savings are not likely.

Recommendation: The DOH and DHA's should work together to ensure that drug costs are reported consistently across all districts. When resources permit, a drug utilization pharmacy program should be established. This might be shared with 1 or 2 adjacent districts.

5.5 Food service costs

Direct food service costs at $ 30.20 are the lowest of the six reported districts.

6. Administration

6.1 Administration Costs

In 2002/03, CEHHA management was responsible for a net expenditure of $ 41,375,317 comprised of $ 43,240,644 in expenses and $ 1,865,327 in revenues. Administration costs, including general administration, finance, human resources and communications were $2,634,261. A measure of performance is the percentage of administrative costs relative to total costs. At 6.37 %, DHA 4 is the second lowest, exceeded only by DHA 1 at 6.05 %. We also note that this indicator showed a year over year decline from 2001/02 to 2002/03, while four of the seven DHA's experienced an increase. While this may be an indicator of high performance, we are concerned that it may also indicate a shortage of personnel to provide appropriate leadership and support for staff.

6.2 Patient Care Management

The overall organization structure is similar to that of other DHA's and is quite lean. Nurse managers are responsible for a number of nursing units on a 24 hour basis, supported by an on- call system. Issues are similar to those in DHA 6 where we discussed the need to consider expanding administrative and clinical supports for nursing during evenings, nights, weekends and holidays.

6.3 Decision support

CEHHA has recently reorganized some positions to provide the beginning of a decision support group to provide analyzed information to assist with management. This is an excellent first step. Further investment in this area may be needed.

6.4 Human Resource management

Performance management and attendance management programs are in place.

6.5 Shared Services

CEHHA participates in a number of shared services, both in clinical and support services. All of these work well, except for Finance, which has been problematic. Continued focus on meeting the needs of the customers is essential if this service is to be effective. This requires both current software and appropriate staffing to provide accurate, timely information to managers, the board and the DOH. It is interesting to note that DHA's 1- 3 also have a shared service arrangement for financial services, but they have significantly higher staffing- 38.5 FTE's compared to 21.5 FTE's (recently increased from the original 19.2) in DHA's 4-6. It appears that DHA's 4-6 may therefore be understaffed relative to DHA's1-3. However we would need to look more closely at the organization structure, roles and responsibilities before commenting further. It is also essential that roles and responsibilities be clear and

widely communicated so that line managers know where to go for help with budget preparation and monitoring.

System adjustments have been completed in DHA's1-3 and are being considered in DHA's 4-6 (materiel management and accounts payable, payroll and HR systems). It should also be noted that although most shared services function effectively there are gaps and challenges in the following areas:

- In materials management staff are needed to improve contract review/negotiation and implement HealthPro opportunities

- In information and communication services staff are required to address the high number of users and system changes due to Meditech, SAP and changes to other financial and HR programs, public health IT projects and primary care projects

- In human resources, training and development, occupational health and safety, employee health/infection control are all short staffed. We do not have the FTE's in these areas for other districts but have been advised that DHA's 1-3 have more staffing in all these categories.

6.6 Risk Management

Recommendations of a Risk Review undertaken in 2002 are being implemented where possible.

6.7 Planning for new hospital

Planning a new hospital will be very time consuming for staff. CEHHA will need to ensure that it is adequately resourced during the planning and construction phases in order to ensure sufficient attention to detail in the new hospital while also providing efficient and effective ongoing operations at the existing site. Project coordination and infection control resources will be required from the outset.

6.8 Lillian Fraser Memorial Hospital

DHA 4 has an arrangement with Willow Lodge in Tatamagouche to provide non clinical management services to Lillian Fraser Memorial Hospital. This arrangement works well. Future planning for redevelopment of the hospital includes a joint facility with the nursing home. When this happens, further staffing efficiencies will be possible. We support this direction as it makes for cost-effective service delivery, especially in small rural facilities.

6.9 Conclusions

With a few exceptions, DHA 4 is the best or close to best in terms of economic performance of the seven DHA's compared. This indicates that they are using the funds available to them wisely. However, as costs have been constrained and investments foregone for several years, some investments are now needed. We would support targeted investment in expanded services to meet defined needs such as chronic disease management when resources are available. These have been identified in new program submissions during each business planning cycle. In addition, investment in human resources and software to improve management information is essential.

Recommendation: CEHHA should be considered for additional targeted DOH funding when money is available.

In terms of total funding per capita,(excluding medical fees because they are fully recovered), DHA 4 is significantly lower than any other district at $ 570 compared to the next lowest-$ 764 in DHA 1. If the adjusted population of each DHA is used as the denominator (ie taking into account inflow and outflow), per capita funding is $788. This still makes it the lowest of all the DHA's, lower than the second lowest DHA 3 at $ 862 and compared to the highest of $1464 in DHA 5 (excluding work in New Brunswick). However, to get a more accurate picture it is necessary to attempt to quantify the cost of services used in other districts by residents of DHA 4- for example pacemakers and orthopedic surgery in DHA 6. When the province proceeds with development of a funding formula, such issues would need to be taken into account. In addition, DHA 4 has by far the lowest ratio of nursing home beds per capita and this has a significant impact on the use of acute care services.

Recommendation: The DOH should proceed to develop a funding formula that will promote fair, equitable and transparent funding allocation to all districts. In preparation for this initiative the DOH and DHA's should continue to improve data quality as accurate data will be essential to funding formula development and implementation.

APPENDIX A

Macro Benchmarks DHA'S 1-7, Nova Scotia

Indicator	DHA						
	1	2	3	4	5	6	7
2002 population	61,754	64,886	84,431	73,581	33,269	49,180	48,175
Adjusted inflow/outflow '04	46,161	45,310	82,878	53,211	24,430	40,569	39,778
Colchester county				51,209			
Population 65 +	10,623	10,577	12,629	9,600	5,917	7,565	7,087
Colchester 65 +				7,503			
Population 65 + %	17.2	16.3	15	13	17.8	15.4	14.7
Colchester 65 + %				14.7			
Population 75 +	5,006	5,443	5,823	4,471	2,917	3,893	3,251
Colchester 75 +				3,640			
Population 75 + %	8.1	8.4	6.9	6.1	8.8	7.9	6.8
Colchester 75 + %				7.1			
A & C pt Days(inc Vets,ALC etc)	42,031	49,723	58,554	36,812	25,508	41,629	31,777
Seps/1000 by DHA of res	98	108	101	104	127	136	110
Days /1000 by DHA of res	758	1,007	679	708	877	783	887

	1	2	3	4	5	6	7
ALOS by res	7.7	9.4	6.7	6.8	6.9	5.8	8
ALOS by dist hosp	7.8	8.5	5.7	6.9	7	5.6	7.4
OR cases-dist hosp	5,277*	4,890*	7,264*	5,691	0	4,276	3,104
UPP earned hrs/OR visit	3.73	4.99	6.24	4.61		5.48	8.05
UPP worked Hrs/ OR visit	3.07	4.22	4.84	3.38		4.46	6.66
Ratio OR Earned: worked hrs	1.23	1.17	1.18	1.36		1.22	
Direct Costs OR($000)	1,860	1,993	5,866	2604 (1)	1,144	4,015	1,941
Direct cost per OR visit Dist Hosp	311.88	395.33	647.66	391.33		938.88	625.39
% inpt OR cases to total	15	17	38	24		32	41
Weighted Cases (DHA)	5,450	7,969	10,301	5,778	3,295	6,279	5,666
Weighted Cases(Dist Hosp)	4,412	5,434	8,238	5,361	2,951	6,279	4,239
Cost/ Weighted Case(01/02)	3,624	3,460	3,205	3,369	3,330	2,687	3,151
ALC Days	3,798	10,139	6,517	214	12	390	3,627
ER visits-dist hosp	38,210	23,626	32,284	38,483	0	30,381	23,479
ER visits/1000.Dist Hos	619	364	382	523	0	618	487
ER visits total DHA	55,679	55,835	85,141	44,699	0	30,381	39,960

	1	2	3	4	5	6	7
ER visits/1000 DHA total	902	861	1,008	600	0	618	829
ER Visits/1000 adj pop	1,206	1,232	1,027	830		749	1,005
Direct Costs ER DIST Hosp($000)	2,079	2,034	2,345	2,149	1,698	2,554	1,693
Direct cost/ERvisit DHA total	51.6	61.1	52.59	49.79	193.56	84.07	59.2
Direct Costs Med/Surg/Peds($000)	5,783	5,774	6,814	5,635	3,812	5,568	3,210
Pat Days Med/Surg/Peds	21,223	25,563	28,509	25,474	16,185	24,370	12,472
Dir cost/pat day M/S/PEDS	272.48	225.88	239.02	221.19	240.75	228.49	257.41
LPN:RN ratio-inpat	51.9	49.9	38.8	32.1	50	30.6	49.9
Inpat Earned: UPP worked Hrs	1.2	1.2	1.29	1.21	1.29	1.16	1.24
Earned hrs/pt day-dist hosp	8.52	7.19	7.96	6.77	6.66	6.78	6.74
UPP worked hrs/pt day dist hosp	7.08	6.01	6.18	5.6	5.62	5.84	5.45
Dir cost/pt day comm hosp	227.91	235.65	189.36	456.66	573.15	0	338.59
Admin Costs 02/03($000)	2,778	3,625	5,228	2,634	2,969	3,074	4,179
Admin cost as % of total	6.05	6.51	7.44	6.37	9.39	7.04	9.85
Admin Costs 01/02($000)	2,640	2,684	4,360	2,560	2,791	2,806	3,383
Admin Costs as % of Total	5.73	4.93	6.23	6.65	9.47	7.14	8.35
Endoscopies	1,701	1,938	3,252	2,495	1,444	1,874	1,980

	1	2	3	4	5	6	7
Endoscopie: ies/1000 pop	37	43	39	47	59	46	50
Licensed N H Beds	450	489	493	240	220	446	361
Licensed NH Beds/1000 75+	90	90	85	54	75	115	111
DI Direct Costs Dist Hosp($000)	2,215	2,072	2,649	1,735	817	1,758	1,464
D I Procedures	74,497	76,128	95,292	56,046		58,255	
D I Procedures/1000 pop(adj)	1,614	1,680	1,150	1,053		1,465	
DI Cost/1000 pop(adj)	47.99	45.73	31.96	32.61		47.89	
Direct DI cost/Proc(Dist Hos)	32.33	33.94	40.34	30.96		32.7	
Total Gross Expenditures 02/03 (ooo's)	49,325	60,659	72,685	45,078	37,117	45,207	48,539
Tot Gross Expend excl Med Fees(000's)	47,178	59,067	71,408	41,951	35,776	42,865	45,678
Tot Gross Expend excl Med Fees per capita	764	910	846	570	1,075	872	948
Tot Expend excl Med fees per adj cap	1,022	1,304	862	788	1,464	1,057	1,148
ICU Direct Costs($000)	1,272	1,436	2,288	2,242	1,139	2,164	1,175
ICU Direct Cost /Pat Day	713.67	700.7	1,021.25	752.9	754.11	732.97	661.46
Med Surg Costs (000's)	1,504	1,779	4,406	1,610	983	3,277	1,434
Med Surg Costs/ Pat Day Inc. Newborn	33.53	34.06	69.63	42.58	26.67	67.13	39.75
Drug Costs (000's)(InPat-Dist Hosp)	578	651	855	702	493	664	398

	1	2	3	4	5	6	7
Drug $/Pt Day Inc Newborn Dist Hosp	24	25.45	29.99	27.56	30.48	27.3	31.94
Dir Food Ser Costs/ Inpatient Day	39.4	65.7	33.9	30.2		40.8	37.4
LAB-Direct costs(000's)	2,510	2,999	3,379	3,074	1,646	3,075	2,542
LAB-Direct Cost/ Pat Day	7.53	10.61	15.29	12.85	12.64	13.72	10.03
Av. Inpat lab Units/Pat Day-Dist Hos	10.05	12.74	19.46	17.16	15.44	18	10.11
UPP Worked Prod Index(%)	109	111	114	105	107	115	90
Ratio Earned: wkd hrs Lab	1.17	1.22	1.35	1.17	1.19	1.22	1.18
2001/02 avg $/Phys	199,560	209,869	196,351	196,135	150,301	185,859	221,851
2001/02 avg MSI $/person	243.93	225.84	231.85	219.73	214.91	232.54	221.41

Footnote 1. Revised Cost becomes $ 2,175when CSR & Recovery Room costs removed

Revised February 9

APPENDIX B

Terms of Reference

Value for Money Assessment

DHA 4 and DHA 6

Prepared for the Nova Scotia Department of Health

A. Background.

The Government of Nova Scotia announced that Value for Money Assessments (VMA's) would be undertaken for third party agencies including District Health Authorities. Two districts in the province- DHA 4 and DHA 6 have been selected as the initial districts to be studied due to the size of their projected budget deficits in this fiscal year. Virginia MacDonald has been requested to develop the process and undertake a VMA for each of these DHA's. This document outlines our understanding of the objectives, a tentative work plan, project deliverables and resources.

B. Objectives.

The purpose of the assessment is to ensure that the organizations in question are operating as effectively and efficiently as possible within the resources provided by government. In essence, the question is whether they are providing the right services at the right price to achieve their mandate. The VMA needs to be completed as quickly as possible so that changes recommended can at least start within the current fiscal year.

C. Approach

Provision of health care services is an extremely complex process. There are few, if any, absolutes and clear definitions of outcomes are just beginning to be developed. Therefore, a VMA for a health care facility must rely on comparisons combined with good experience and judgment.

Reform in health care is a lengthy process. Many initiatives now underway in such areas as primary care will take years before they make a significant impact. At this point in time, the most costly services within the DHA's are hospital based. Therefore, the focus of concentration in the VMA will be acute care services, although these must be considered in the context of the entire delivery system.

Our proposed approach uses a "horizontal skim" and "vertical bore" approach. This involves taking a broad brush approach to the entire organization to identify macro areas where the district in question is out of line with its peers. Areas identified for potential improvement against provincial best practices would then be explored in more depth to determine the extent to which change can occur within the operating environment of the particular DHA.

In this process we will rely heavily on the Department of Health to provide comparative data for the seven DHA's serving rural Nova Scotia. Although not identical in population served or services offered, they are reasonably comparable. National comparisons at this point are not considered helpful due to variations in data and structures. We will augment DOH data with specific DHA data as necessary. Once a good set of comparative benchmarking data is available we will undertake an interview program involving DOH and DHA staff, physicians and board members, as well as selected representatives of other DHA's where they appear to be the best practice in a particular benchmark.

Following is an outline work plan consistent with this approach. It is designed to meet your requirement of completion within an 8-10 week timeframe.

D. Outline Work Plan

Following is our proposed work plan:

1. Meet with Steering Committee

We expect you will establish a steering committee to oversee the work and provide guidance on issues and sources of information. We will meet with this committee on a regular basis, likely at least bi-weekly.

2. Review Background documentation

We will undertake a review of relevant background documents such as business plans, role studies, strategic plans, accreditation reports and others that will enhance our understanding of the current situation of the DHA's under study.

3. Obtain available benchmark information

We will meet with DOH staff to identify what comparative information is currently available and any limitations to the data. We will then identify specific indicators to be used for the horizontal skim. Following are some examples of peer group (ie DHA's 1-7) comparisons to be reviewed at this stage:

- Separations (cases) and days per thousand population by age and sex and major CMG's

- Operative procedures per thousand population, in total and for highest volume procedures
- Cost per operative procedure
- Nonoperative procedures per thousand population(eg endoscopies)
- Day surgery cases per thousand population
- Paid hours per inpatient day by service and total
- Cost per inpatient day
- Food service costs per meal day
- Drug costs per thousand population and per patient day
- ER visits per thousand population
- Diagnostic imaging tests and costs per thousand population
- Laboratory service costs per thousand population

Where possible we will examine 2 or 3 years of data. Sources of information will include MIS, CIHI, Physician billing database and other DOH and DHA information sources.

4. Conduct Interview Program

We will conduct a focused interview program with representatives of the DOH and DHA's 4 and 6 to explore the implications of the peer group comparisons undertaken in step 3. We will also interview representatives of other DHA's as appropriate to obtain insight to operations that appear to be more cost effective based on the horizontal skim.

Following are some of the areas we would want to explore in the interview program:

- Where the DHA under study appears to vary significantly from other DHA's, what factors affect their performance
- What actions have been undertaken to address areas of underperformance
- What actions are required to address areas of underperformance
- Changes in clinical practice that have occurred or are planned

5. Undertake financial and management process review

We will undertake a review of each DHA's financial records including monthly, quarterly and year end financial statements including the auditor's report. Our review will also include an overview of the organizational structure, decision making processes (including business planning and impact analysis processes), risk management and financial controls. We will also review use of overtime sick leave, staffing ratios and other factors affecting the cost of operations. These will be undertaken on site at each DHA.

6. Prepare a Report of Findings

We will analyze the information from the previous steps and present our findings in a discussion paper for each DHA under study. The findings will include, but not necessarily be limited to, the following:

- Benchmark comparisons for DHA's1-7 with comments and interpretation of the implications for DHA 4 and DHA 6

- An overview of the context within which each DHA under study operates in terms of population health needs, services and resources available

- Identification of opportunities for improved performance and actions required to achieve identified improvements

7. Review Findings with Steering Committee and DHA's 4 and 6

We will discuss our findings with the Steering Committee and the affected DHA's. From this review we expect to identify areas requiring a more in depth look or "vertical bore". We will then determine how best to undertake a more in –depth review within the time and resources available. At this stage we will be looking for priority areas that could represent a "quick hit " or rapid return on investment, hopefully within this fiscal year.

8. Conduct additional analysis of key opportunities

We will undertake additional analysis of any areas appearing to present significant opportunities that require additional information before developing final recommendations. This may involve contacting other DHA's, further interviews and other investigations.

9. Prepare preliminary draft report

A draft report, summarizing all the work completed to date will be prepared for review by the Steering Committee and the affected DHA's. The draft report will include at least the following:

- A series of utilization, operational and financial performance benchmarks comparing DHA's 1-7
- Analysis of the performance of DHA's 4 and 6
- Identification of recommendations for improvement in areas of underperformance, including, where possible, "quick hits" that can be implemented immediately
- Identification of any areas of follow-up to be considered for more in- depth study

10. Deliverables:

Following review and discussion of the draft report with all affected parties we will finalize our report

At the completion of this process you will have:

- A framework for conducting VMA's for DHA's as well as other third party organizations
- A series of benchmarks that can be used to undertake high level reviews of the performance of all DHA's
- An analysis of the operational and financial performance of DHA 4 and DHA 6
- Recommendations for improvements in performance in DHA 4 and DHA 6 and associated action plans
- Identification of areas that should be further explored to improve long term performance

E. Resources and Timing.

1. Personnel

The project leader will be **Virginia MacDonald.** In this role Virginia will design the work plan, work closely with DOH and DHA staff to develop indicators, review management and clinical services and write all reports. Virginia has over 35 years experience in health care and has undertaken numerous strategic and operational studies for clients in eastern Canada, and especially Atlantic Canada. Prior to establishing her own health care consulting practice 6 years ago, Virginia spent 12 years leading the Atlantic Health Care practice of KPMG. Prior to her private sector consulting career Virginia worked with Departments of Health in Ontario and Nova Scotia.

Working with Virginia to undertake the review of financial systems, will be **Gerry MacKenzie,** Partner in charge of the Sydney office of KPMG. Gerry is extremely well versed in health care financial issues and is the partner responsible for auditing of Districts 7 and 8. He has also conducted numerous special assignments. Gerry will be assisted by other personnel in his office in conducting his review.

Appendix C

List of Documents reviewed, DHA 4.

1. Detailed Business Plan and budget documents, 2003/04-*CEHHA*
2. CEHHA Strategic Plan, 2003/04-*CEHHA*
3. Finance Committee Minutes, 2001/02/03, *CEHHA*
4. IT Audit letters, *Grant Thornton* re CEHHA
5. Value for Money Assessment Clinical Data, CEHHA, *Decision Support, CEHHA*
6. Department of Health Lead Sheets, all DHA's, 2003/04- *DOH*
7. An Overview of Some Characteristics of the Health of Persons within the Colchester- East Hants Health Authority- *Nova Scotia Department of Health*
8. Annual Reports, 2001/02 and 2002/03- *CEHHA*
9. Report to the Community-*CEHHA*
10. CCHSA Accreditation Survey
11. District Role Document, Final Draft, *William Nycum and Associates Ltd.*
12. Various letters between DOH and CEHHA
13. Risk Review, CEHHA, 2002- *Marsh Risk Consulting*
14. Report of Workplace Inspection, CEHHA, *Nova Scotia Department of Environment and Labour*
15. Various internal budget, workload and staffing documents ,*CEHHA*
16. Organization Charts ,*CEHHA*

Appendix D

List of Persons Interviewed, DHA 4.

1. **DOH**

Ian Bower, Manager Physician Resources
Lori Currie, Regional Financial Officer
Cheryl Doiron, Associate Deputy Minister
Dr.David Elliott, Medical Biostatistician
Dr. Keith Jackson, director Health Economics
Janet Knox, Executive Director Acute Care
Brenda Payne, Director Acute Care
Dr. David Rippey, Executive Director, QEHS/HP

2. **CEHHA**

Peter MacKinnon, CEO
Colin Stevenson, VP of Operations
Dr. Shaun MacCormick, Chief of Staff/Medical Director
Sue MacEachern, VP of Patient Care
Eleanor MacDougall, VP of Community Services
Norma MacKenzie, Manager, Surgical Services
Carl Ferguson, Manager DI (retired)
Carolyn Bartlett, Manager, ICU/CCUand Emergency Services
Charlotte Smith, Health Records
Bruce Hennigar, Director, Finance
Heather MacGregor, Manager, Medicine, palliative, geriatrics, oncology, veterans
Dianna Fortnum and Mark Scales, Managers,Mental Health Services
Brenda Soutar ,Manager Laboratory Services
Dr. Bob Boutilier, Chief, Laboratory Services
Greg Purvis and Steve Currie, Addiction Services
Dr. Masis Perk, Chief of Medicine
Dr. Mike Howlett, Chief ER
Dr. Jamie Rogers, Chief of Surgery
Dr. Nancy McNeil, Chief, DI
Ted Jordan, formerly Chair, Finance Committee

In addition, Dorothy Forse, MIS Analyst and George Doyle Bedwell, Biostatistician, provided extensive amounts of information throughout the study process.

Inflow-Outflow Ratio, DHAs, Fiscal 2002/03

With this overall ratio, a balanced inflow-outflow ratio (1.0) can mean that everyone in the jurisdiction gets service within that jurisdiction OR that people leaving the jurisdiction and coming into the jurisdiction for service is equal in number. Therefore caution must be exercised when using this measure.

Ratio

1.6
1.2
0.8
0.4
0.0

DHA 1	DHA 2	DHA 3	DHA 4	DHA 5	DHA 6	DHA 7	DHA 8	DHA 9
0.71	0.74	0.99	0.69	0.74	0.89	0.84	0.93	1.41

Source: CIHI Discharge Abstract Database

Department of Health

Same Day Admission Surgery Rates, DHAs, Fiscal 2002/03

	Total Rate
DHA 1	87.98%
DHA 2	91.10%
DHA 3	89.56%
DHA 4	91.66%
DHA 5	78.53%
DHA 6	82.24%
DHA 7	88.78%
DHA 8	94.12%
DHA 9	90.29%
IWK	87.29%
Nova Scotia	90.00%

Legend: Total Rate, Target

Y-axis: Percentage (0%, 20%, 40%, 60%, 80%, 100%)

Source: CIHI Discharge Abstract Database

Department of Health

Day Surgery as % of all Elective Surgery, DHAs, Fiscal 2002/03

Legend: Total Rate — Target

Y-axis: Percentage (0%, 20%, 40%, 60%, 80%, 100%)

	Total Rate
DHA 1	93.28%
DHA 2	91.75%
DHA 3	84.54%
DHA 4	84.57%
DHA 5	93.00%
DHA 6	83.58%
DHA 7	84.50%
DHA 8	82.15%
DHA 9	85.69%
IWK	72.80%
Nova Scotia	84.73%

Source: CIHI Discharge Abstract Database

Department of Health

% Ambulatory Care Sensitive Conditions, DHAs, Fiscal 2002/03

	Percentage
DHA 1	3.51%
DHA 2	5.33%
DHA 3	3.07%
DHA 4	3.35%
DHA 5	5.09%
DHA 6	4.09%
DHA 7	3.56%
DHA 8	4.16%
DHA 9	2.44%
IWK	2.52%
Nova Scotia	3.30%

Source: CIHI Discharge Abstract Database

Department of Health

Readmissions to the Same Hospital within 7 days of Discharge, DHAs, In-Patients, Fiscal 2002/03

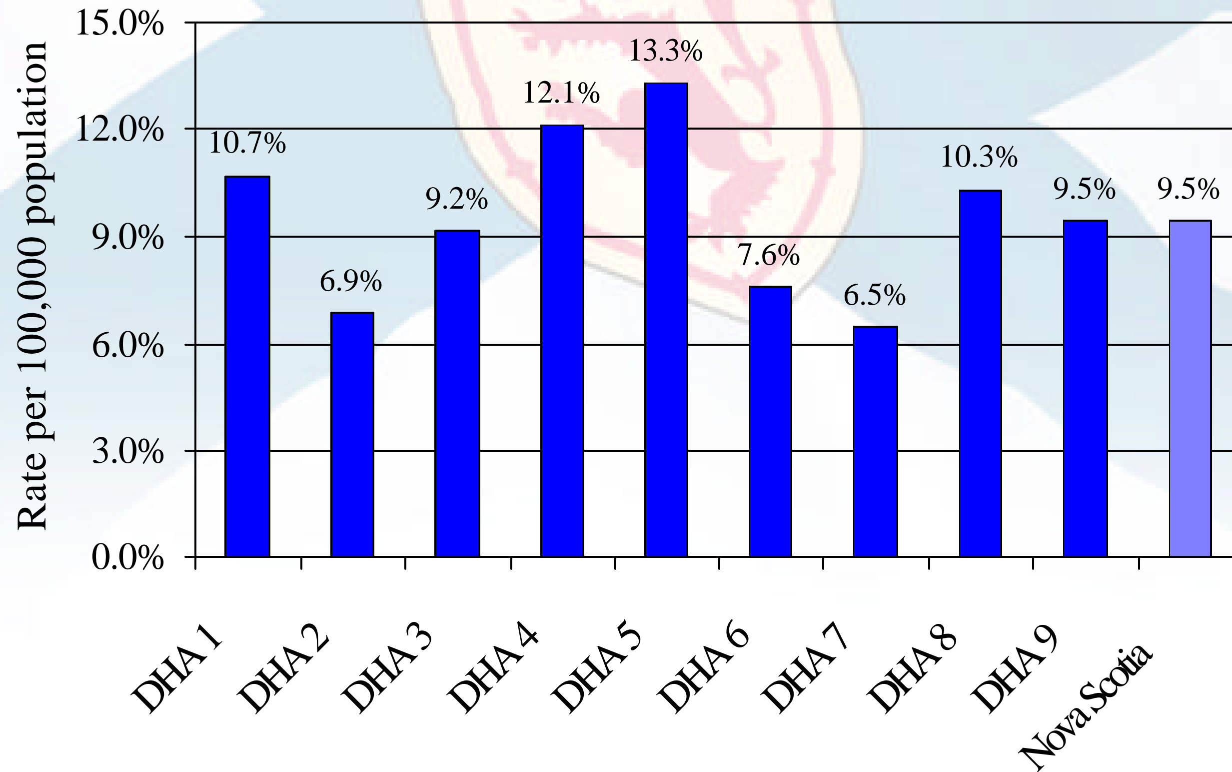
Percentage (y-axis: 0.0%, 1.0%, 2.0%, 3.0%, 4.0%)

	Percentage
DHA 1	2.24%
DHA 2	2.37%
DHA 3	2.40%
DHA 4	2.40%
DHA 5	3.66%
DHA 6	2.97%
DHA 7	2.25%
DHA 8	2.93%
DHA 9	2.30%
IWK	2.10%
Nova Scotia	2.47%

Source: CIHI Discharge Abstract Database

Department of Health

% of Population, Aged 12+, With a $90% Probability[1] of Clinical Depression



[1] – Calculated from responses to a series of questions, designed to 'diagnose' clinical depression (based on the Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition).

Source: Canadian Community Health Survey CCHS Cycle 1.1, 2001, Statistics Canada

Department of Health

Glossary

Separation. Discharges and deaths following an episode of inpatient hospital care

CSPD. Central Sterile Processing Department

DOH. Department of Health

CIHI. Canadian Institute for Health Information

UPP. Unit Producing Personnel. Reflects hours worked by those service providers directly involved in delivery of services to specific service recipients. Excludes time spent on management and educational activities.

LPN. Licensed Practical Nurse

RN. Registered Nurse

CCHSA. Canadian Council on Health Services Accreditation

ALC. Alternate Level of Care- not requiring an acute care bed

ALOS. Average length of stay

A& C. Adult and Child

Earned hours. Hours paid including premium (overtime and shift premiums), sick time, vacation, statutory holidays

Worked hours. Hours actually worked or providing service

ORT. Operating room technician

FTE. Full time equivalent

MIS. Management Information System