Newfoundland & Labrador
Centre for
Health Information

MIS Standards, Workload Measurement and Statistical Data Collection

Reference Guide for Electrodiagnostic, Non-Invasive Cardiac and Vascular Laboratories

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Introduction

Purpose

This reference guide provides users with information regarding the Management Information Systems (MIS) Standards and their application to the discipline specific area of service in the Newfoundland and Labrador Health Care System.

MIS Standards

The Standards for Management Information Systems in Canadian Health Service Organizations (MIS Standards) are published by the Canadian Institute for Health Information (CIHI). The MIS Standards are a set of national standards for collecting, processing, and reporting of financial and statistical information on the day to day operations of a health service organization. Originally developed for hospitals, the MIS Standards have expanded over the years to include all types and sizes of health organizations. The MIS Standards specify:

- what data to collect
- how to group and process data
- how to analyze and use the data to support management functions such as evaluation, control, budgeting, planning and quality initiatives (turning data into information)

Core components of the MIS Standards are:

- chart of accounts
- accounting principles and procedures
- workload measurement systems
- indicators
- management applications
- glossary of terms

The primary goal of the MIS Standards is to provide standardized, basic operational management information to front line managers as well as administrators throughout the health system. Implementation of the MIS Standards enables organizations to have comparable financial information and related statistics (such as workload and patient activity) for the many clinical services they provide. This data can then be used to report calculation of key indicators, providing a useful tool to measure and monitor performance. Some examples are:

- accountability reporting by managers for resource use
- development of budgets based on meaningful workload and activity projections
- more precise resource allocation
- more informed management decisions

The MIS Standards were adopted by the Newfoundland and Labrador Department of Health and Community Services (DHCS) in 1992. Provincial reporting requirements were developed based on the national reporting requirements with provincial customization as required to meet local information needs.

A national MIS Technical Working Group provides CIHI with expert technical advice on the development, maintenance, and effective implementation of the MIS Standards across the continuum of health service delivery. The working group is composed of provincial and territorial MIS Coordinators, with additional members from the field added at CIHI's discretion.

Provincial MIS Committees

Historically, there were 18 provincial MIS committees (listed below). Currently, there are 2 standing committees: Data Quality and Reporting, and Health Information Services Committee. The other discipline specific committees were dissolved once their mandate was completed. When necessary, discipline specific committees can reconvene (standing or ad hoc) to address revisions to the Standards, issues, or a new mandate.

- Data Quality and Reporting *(Financial & Statistical Reporting)*
- Audiology
- Clinical Laboratory
- **Electrodiagnostic, Cardiac and Vascular Laboratories**
- Food Services Administration
- Health Information Services
- Medical Imaging
- Nursing
- Nutrition Services
- Occupational Therapy
- Pastoral/Spiritual Care
- Pharmacy
- Physiotherapy
- Psychology
- Respiratory Therapy
- Social Work
- Speech-Language Pathology
- Therapeutic Recreation

The Provincial Data Quality and Reporting MIS Committee includes a finance representative from each Regional Health Authority (RHA), Manager of Financial Analysis at the DHCS, MIS Standards Consultants at the Newfoundland and Labrador Centre for Health Information (NLCHI, hereafter referred to as the Centre), and a CIHI representative. Part of the committee's mandate is to review the provincial reporting requirements of the DHCS, issues related to data quality, discipline specific User Guide updates and changes, and any inconsistencies in application of the data standard (MIS Standards).

MIS Standards and the Role of the Newfoundland and Labrador Centre for Health Information

The Centre was established to provide quality information to health professionals, the public and health system decision makers. Through collaboration with the health system, the Centre: supports the development of standards, maintains key provincial health databases, prepares and distributes health

reports, and supports and conducts applied health research and evaluations. The Centre's mandate also includes the development of a confidential and secure Electronic Health Record (EHR) for the province.

The MIS Standards are the responsibility of the Centre's Health Information Standards and Quality Division. This division is responsible for developing and promoting the use of data standards for financial, statistical, social, demographic, and clinical data collection in the health sector. It is responsible for ensuring that this data is uniform in definition, measurement, collection, and interpretation. Many of these standards are developed with, or mirror, national standards, which ensures comparability and consistency of data across the health system.

Key Concepts

Code Structure and Matching Principle

The MIS Chart of Accounts general coding structure consists of several various code blocks (see Figure 1).

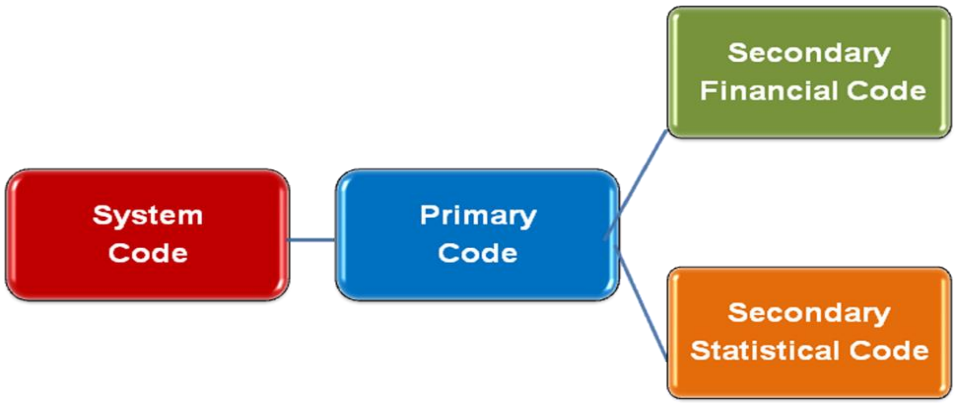

Figure 1

Using these code blocks, data can be recorded in a health service organization's financial and statistical general ledger in a structured manner. The number of blocks used depends on the account being defined.

The first code in all account numbers is the **system code** block. It is assigned by the information systems or finance department when the Chart of Accounts is established for the health service/reporting organization and represents the highest level of data aggregation. Organizations use this code block to numerically identify a facility, site, or program within the RHA.

The **primary code** refers to a numerical name for a functional centre or accounting centre. Functional centres in the diagnostic and therapeutic functional centre framework section are discipline specific. See section 3 for further detail.

The **secondary codes** provide for the recording of either financial or statistical information and identify specific types of information about the functional centre. See sections 4 and 5 for further detail.

The creation of primary and secondary accounts should be discussed with the individual responsible for MIS reporting within an organization to ensure that accounts correctly reflect the activity that occurs and that the secondary accounts are correctly linked with the primary account or functional centre. The person responsible for coordinating MIS activities in an organization can provide additional information on the accounts used for a service.

The **matching principle** in accounting associates both revenues and expenses to a defined time. The MIS Standards expand this matching principle to the reporting of statistics within the same period as the

associated revenues and expenses to enable the calculation of accurate cost indicators. Within the MIS framework there are three levels of data collection and reporting:

- The **functional centre direct cost reporting** level builds on the functional centre framework, linking revenues, expenses, statistics, and indicators to provide a comprehensive picture of a functional centre's resource utilization, activity, and productivity. Functional centres in the diagnostic and therapeutic functional centre framework section are discipline specific.

- The **functional centre full cost reporting** level builds upon the functional centre direct cost reporting level by including the indirect costs associated with each functional centre.

- The **service recipient reporting** level changes the focus from the functional centre to the service recipient and is often referred to as a "case costing." All financial and statistical data are linked to a specific person who receives services. This provides a comprehensive picture of how medical, nursing, therapeutic and support services are utilized in the treatment of various patient, client, or groups. It can demonstrate the impact of practice patterns, programs, services and case mix groups on functional centres, service outcomes and the health service organization.

Functional centre direct cost reporting is the required level for reporting information to the DHCS. This means that all financial and statistical data are linked to defined functional centres and are reported in the functional centre in which the activity took place. While organizations may choose to collect information at the levels of the full cost or service recipient reporting, they will still be required to report to the DHCS at the functional centre level to ensure comparative data is available; however, they will have the advantage of enhanced information for internal decision making.

Broad Occupational Groups

The MIS Standards require all staff be assigned to one (or more) of three broad occupational groups. By doing so, the accuracy of productivity analysis is improved, and the degree of overhead support associated with the service is identified.

Management and Operational Support Personnel (MOS)

Management and operational support are the personnel, including purchased consultant services, whose primary function is the management or support of the operation of the functional centre, although at times they may carry out unit-producing activities. This group includes:

- directors
- managers
- supervisors
- administrative support staff
- clerical support staff
- medical service aides, etc.

If the manager generates workload statistics, the worked hours related to this activity must be recorded as unit-producing, not management and operational support. Failure to link workload with unit-producing worked hours will skew performance indicators.

Unit-Producing Personnel (UPP)

Unit-producing personnel are those personnel whose primary function is to carry out activities that directly contribute to the fulfilment of the service mandate.

Examples include:

- registered nurses; licensed practical nurses
- diagnostic technologists
- accounts payable clerks
- pharmacists
- therapeutic professionals (e.g. recreation specialists, physiotherapists, psychologists, etc.)
- therapeutic assistants (e.g. social work assistants, occupational therapy support workers, etc.)

These personnel generate workload units. It is recognized that UPP staff may, at times, perform activities that are not unit-producing.

Medical Personnel (MP)

Medical personnel are physicians who are compensated for their professional services either on a fee-for-service or salary basis, including interns and residents.

Examples include:

- pathologists
- psychiatrists
- cardiologists
- medical interns
- medical students
- medical residents

Note: The designation of a broad group category is based on function; job category and union category should not be considered. Job category is not appropriate because one job category in an institution can be management and operational support in one functional centre, yet the same job category can be unit-producing in another functional centre (e.g. clerical staff in most clinical departments are MOS but in admitting departments they are UPP). Union category does not apply as staff performing the same job are union in some organizations and non-union in others.

Categorization of Earned Hours

Earned hours statistics measure the use of labour in fulfilling the mandate of the service. These hours should be recorded in the broad categories of workers as outlined in the previous section. The cost of a worked hour may vary from one period to another and from one shift to another. Overtime and standby compensation expenses are attached to the actual hours that are worked (e.g. an hour of overtime is recorded as only one earned hour, but the compensation may be at time and half).

Earned Hours = Worked Hours + Benefit Hours + Purchased Service Hours

Figure 2

Worked Hours

Worked hours are those hours that are spent carrying out the mandate of the service. Staff members are physically present and available to provide service. Worked hours include:

- regular worked hours, including paid coffee breaks
- worked statutory holidays
- relief staff hours, such as vacation relief and sick relief
- overtime
- call back hours paid and banked[1]
- attendance at on-site committee meetings and in-service education[2] (non-service recipient workload)

[1] Call back hours are a component of worked hours, recorded as the actual hours worked, rather than the minimum number of hours paid. Standby hours are not included in the count of worked hours but the associated expenses (compensation) are a component of worked salaries.

[2] Includes education sessions of less than ½ day; sessions greater than ½ day are considered benefit hours.

Costs are intended to link with activities and workload and therefore banked hours should be recorded in the payroll system during the period they are earned and not when they are taken.

Benefit Hours

Benefit hours are those hours when staff members are not present but receive pay. Benefit hours include:

- statutory holidays and vacation
- sick and bereavement leave
- workers compensation leave

- attendance at facility orientation, formal education, and training sessions (educational leave)
- union leave with pay
- other paid leave of absence

Purchased Service Hours

Purchased service hours are the hours spent carrying out the mandate of the service by personnel hired from an external agency. They have no benefit hour component. Purchased service hours are treated as worked hours. When contracting for external services, the costs related to management and support compensation, unit-producing compensation and supply costs should be differentiated within the contract.

Notables

Education Hours – Staff time spent in education can fall into both worked and benefit categories. The MIS Standards describe education recorded as benefit hours as formal planned events for self-development and education recorded as worked hours as informal, short duration in-service sessions. When education occurs during worked hours, non-service recipient workload is reported.

Hours spent in education sessions of greater than ½ day duration are benefit hours (education leave); time spent in sessions of less than ½ day are worked hours (non-service recipient workload). This will provide comparable information for performance indicators provincially.

Unpaid Worked Hours – Only paid hours can be recorded as worked hours. If staff work additional hours and record workload for that time, the comparison of worked hours to workload could demonstrate productivity greater than 100%. Submission of unpaid worked time as worked hours will have a negative effect, as performance indicators will not provide an accurate picture of the real situation. Staff working unpaid hours should record this information for internal purposes. Worked hours should be generated from the payroll system to ensure accuracy.

Volunteers – Work performed by volunteers cannot be recorded as part of the functional centres UPP workload. Sometimes this is work that would not be performed by the facility if staff had to be paid and sometimes this is necessary for the provision of services. The number of volunteer hours should be recorded and reported internally to gain an understanding of the contribution of volunteers to the organization. Details of the type of work will be helpful in determining the role of the volunteer in reducing costs or enhancing the quality of the service provided.

Categories of Service Recipient

A ***service recipient*** is the consumer of service activities of one or more functional centres of the health service organization. Service recipients include individuals (e.g. inpatients, residents, client hospitals), their significant others and others as defined by the health service organization.

Workload, service activity and caseload status statistics must be recorded separately for each category of service recipient. This separation supports more detailed analysis of the data, providing an understanding of different resource needs, as well as supporting external reporting requirements. Significant others are individuals who are acting on behalf or in the interest of, the service recipient such as parent, spouse/partner, child, legal guardian, or substitute decision-maker. Excluded from this definition are professionals such as teachers, lawyers, or other health care professionals.

The MIS Standards recognize and define eight categories of service recipients. They are detailed below:

Inpatient

An individual who has been officially accepted by a hospital for the purpose of receiving one or more health services; who has been assigned a bed, bassinet or incubator; and whose personal identifiable data is recorded in the registration or information system of the organization and to whom a unique identifier is assigned to record and track services. This category includes individuals receiving acute, physical rehabilitation, mental health, and addiction services in a hospital setting, and those *admitted* to emergency while awaiting a bed on a nursing inpatient unit.

Note: Also includes services provided by a contracted out third-party provider that provides inpatient services typically provided by a hospital.

This category ***excludes*** hospital s receiving services of a specialty day/night care or specialty clinic nature on a nursing inpatient unit, as well as residents receiving services on a residential care unit, community hospice unit, mental health residential care unit, addiction services residential care unit and stillbirths.

Client Hospital

An individual who has been officially accepted by a hospital and receives one or more health services without being admitted as an inpatient; whose person identifiable data is recorded in the registration or information system of the Regional Health Authority and to whom a unique identifier is assigned to record and track services. Examples include individuals who receive hospital-based emergency day surgery, specialty day/night care, specialty clinic, outreach, mental health, rehabilitation and independent diagnostic and therapeutic services (provincially defined).

Client Community

An individual who has been officially accepted by an RHA to receive one or more health services (other than home care), without being admitted as a resident or inpatient; and, whose personal identifiable data is recorded in the registration or information system of the RHA and to whom a unique identifier is assigned to record and track services. Examples include individuals receiving community-based mental health and/or addictions counselling, public health nursing, health promotion and wellness services, etc. (provincially defined).

Client Home Care

An individual who has been officially accepted by an RHA to receive one or more home health or home support services in his/her place of residence (e.g. private residence, assisted living residence), at an

alternative health delivery location (e.g. community health office) or at a location that meets the client's needs (e.g. school, public place); and whose personal identifiable data is recorded in the registration or information system of the RHA and to whom a unique identifier is assigned to record and track services. Examples include individuals receiving home health services such as the treatment of acute conditions, maintenance of chronic health conditions, rehabilitation to improve functional abilities, etc. and/or home support services such as homemaking, home maintenance, and personal care and respite services (provincially defined).

This category ***excludes*** outreach services provided by hospital or community-services-based health professionals (e.g. home dialysis services provided by hospital staff, mental health services provided by the staff of a mental health outreach program).

Referred-In

A hospital client or specimen: that has been referred for hospital services from another health service organization; and whose personal identifiable data is recorded in the registration or information system of the organization and to whom a unique identifier is assigned to record and track services. Examples include individuals referred from a health service organization for an MRI exam; respiratory services such as hyperbaric chamber and specimens to be tested by the clinical laboratory.

Note: This category is not used in the Newfoundland and Labrador master chart of statistical accounts.

Resident

An individual who has been officially accepted into a designated long-term care bed (LTC) for the purpose of receiving one or more health services; and whose personal identifiable data is recorded in the registration or information system of the organization and to whom a unique identifier is assigned to record and track services. This category includes individuals admitted to residential facilities providing mental health or addiction services in a community setting (provincially defined).

This category ***excludes*** inpatients receiving services from hospital acute, rehabilitation, mental health and addiction services and palliative nursing units.

Facility/Organization/Citizen Partnership

A facility or organization that has been officially accepted by a health service organization to receive one or more health services; and whose encounter is recorded in the registration or information system of the organization and to whom a unique identifier is assigned to record and track services; or whose encounter is recorded within a uniquely-identifiable, hard-copy file or record (rather than in the organization's registration or information system) that is used to record and track services. Examples include restaurants; swimming pools and day care centres to which environmental health and licensing services are provided; and schools, businesses or community organizations to which consultative services are provided regarding concerns such as policy development, food safety or healthy living.

A citizen partnership that has been established to address an identified health issue and whose membership consists of citizens or citizen groups and other key stakeholders (e.g. health care providers, community agencies) that have knowledge of the concern and/or could influence change; and, whose

encounter may be recorded within a uniquely-identifiable hard copy file or record rather than in the registration or information system of the organization. Examples include: a "farm safety coalition" that was formed to discuss ways to prevent tractor accidents amongst teenagers; a "food security coalition" organized to advance the concept of a food charter to support local agriculture products; and a "playground partnership" established to discuss ways to build a safe new play area that will meet the needs of the children in a low-income community.

Service Recipients not Uniquely Identified

An individual who receives one or more services from a health service organization when not currently registered as an inpatient, resident, client hospital, client community, client home care, facility/organization/citizen partnership; and whose encounter is not recorded in the registration or information system of the organization and who has no unique identifier assigned to record and track services. Examples include: individuals calling hotlines for counselling services, individuals attending drop-in centres, and participants attending a general forum on smoking cessation that is aimed at educating the community.

Primary Accounts – Functional Centres

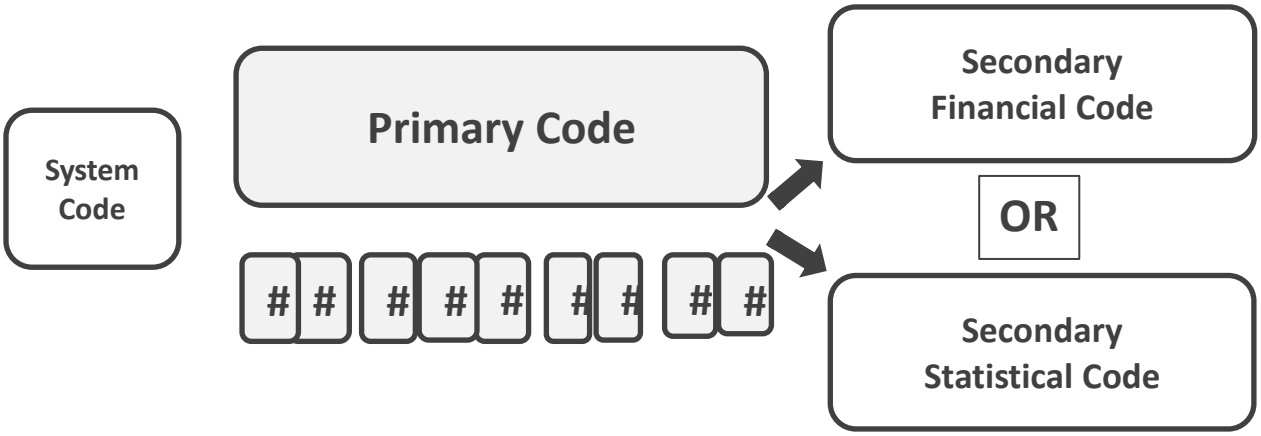

Figure 3

A key component of the MIS Standards is the functional centre framework. Functional centres are a type of primary account that forms the foundation of much of the reporting of the financial and statistical data within a health care organization. The functional centre framework is a five-level hierarchical arrangement of departments or functional centres that recognizes the diversity in size and specialization of health service organizations. It provides a method for organizing information for both internal and external reporting purposes. The hierarchical arrangement allows varying sizes of health service organizations to use the structure and permits information to be "rolled-up" or consolidated for external comparative reporting.

Each department or service that is a cost centre (has a designated budget) is assigned a primary account code. These primary account codes are typically used in conjunction with a secondary account code, to further label and define an account. This is required by a health service organization to track revenues, expenses and statistics associated with each department or service.

Primary account codes are made up of five segments; with a total of nine coding positions, which are structured in a specific manner (see Figure 4 below).

Figure 4

The following details the five segments of the primary account code:

Account Type

7 — The 1st digit is the account type. The account number will always start with a 7 to indicate that this account represents a functional centre.

Fund Type

71 — The 2nd digit indicates the primary source of funding for this activity. The finance department will designate this digit. In most cases this will be a 1 to indicate global/operating funding.

Framework

71 4 — The 3rd digit indicates where the service was provided. Diagnostic and therapeutic services are represented by 71 4 (see Figure 5).

Functional Centre (level 3)

71 4 ## — The 4th & 5th digits indicate the type of service provided. For therapeutic services these are primarily profession-specific functional centres. This is referred to as level three reporting.

Functional Centre (level 4)

71 4 ## ♦♦ — The 6th & 7th digits indicate further breakdown of services for some functional centres. These accounts are sub-categories of level three accounts. This is referred to as level four reporting.

Functional Centre (level 5)

71 4 ## ♦♦ ★★ — The last two digits of the primary account code are used to provide additional detail and may be reserved for board use in some situations. This is referred to as level five reporting.

Functional centres are used to aggregate and integrate information concerning specific activities. The account assigned to a functional centre provides the reader of the information with insight into the activity that has generated the data reported. For example, the primary account number **71 4 25 10 00** tells the reader that the data is related to the electrodiagnostic laboratories specifically the electroenchalography (EEG) service. (See Figure 5)

Example 1: Electroenchalography (EEG) services are represented by account number **71 4 25 10 00** (as illustrated in Figure 5):

7	1	4	25	10	00
Account Type	**Fund Type**	**Framework Section**	**FC Level 3**	**FC Level 4**	**FC Level 5**
1-6 Balance Sheet Accounts **7 Functional Centres for Revenue, Expense and Statistics** 8 Accounting Centre	**1 Operating Fund** 2 Inactive 3 Inactive 4 Board Designated 5 Capital 6 Special Purpose 7 Inactive 8 Endowment Revenue – Unrestricted 9 Endowment Revenue - Restricted	1 Admin & Support 2 Nursing Inpatient/ Resident 3 Ambulatory Care **4 Diagnostic & Therapeutic** 5 Community & Social Services 6 Inactive 7 Research 8 Education 9 Undistributed	10 Clinical Laboratory 15 Medical Imaging 20 Radiation Oncology **25 Electro-diagnostic Laboratories** 30 Non-Invasive Cardiology and Vascular Laboratories 35 Respiratory 40 Pharmacy	**10 EEG** 20 EMG 30 Evoked Potentials 40 Polysomnography 50 Intensive Monitoring 60 ENG/EOG	Accounts specific to previous level to provide more detail if required.

Figure 5

Example 2: Non-invasive cardiology services specifically electrocardiography (ECG) are represented by account number **71 4 30 20 90** (as illustrated in Figure 6):

7	1	4	30	20	90
Account Type	**Fund Type**	**Framework Section**	**FC Level 3**	**FC Level 4**	**FC Level 5**
1-6 Balance Sheet Accounts **7 Functional Centres for Revenue, Expense and Statistics** 8 Accounting Centre	**1 Operating Fund** 2 Inactive 3 Inactive 4 Board Designated 5 Capital 6 Special Purpose 7 Inactive 8 Endowment Revenue – Unrestricted 9 Endowment Revenue - Restricted	1 Admin & Support 2 Nursing Inpatient/ Resident 3 Ambulatory Care **4 Diagnostic & Therapeutic** 5 Community & Social Services 6 Inactive 7 Research 8 Education 9 Undistributed	10 Clinical Laboratory 15 Medical Imaging 20 Radiation Oncology 25 Electro-diagnostic Laboratories **30 Non-Invasive Cardiology and Vascular Laboratories** 35 Respiratory 40 Pharmacy	**20 Non-Invasive Cardiology Laboratory** 40 Vascular Laboratory	20 Echocardiography 40 Ambulatory Monitoring 60 Exercise Stress Test 80 Electrophysiology **90 Electrocardiography**

Figure 6

Example 3: Vascular laboratory services are represented by account number **71 4 30 40 00** (as illustrated in Figure 7):

7	1	4	30	40	00
Account Type	**Fund Type**	**Framework Section**	**FC Level 3**	**FC Level 4**	**FC Level 5**
1-6 Balance Sheet Accounts **7 Functional Centres for Revenue, Expense and Statistics** 8 Accounting Centre	**1 Operating Fund** 2 Inactive 3 Inactive 4 Board Designated 5 Capital 6 Special Purpose 7 Inactive 8 Endowment Revenue – Unrestricted 9 Endowment Revenue - Restricted	1 Admin & Support 2 Nursing Inpatient/ Resident 3 Ambulatory Care **4 Diagnostic & Therapeutic** 5 Community & Social Services 6 Inactive 7 Research 8 Education 9 Undistributed	10 Clinical Laboratory 15 Medical Imaging 20 Radiation Oncology 25 Electro-diagnostic Laboratories **30 Non-Invasive Cardiology and Vascular Laboratories** 35 Respiratory 40 Pharmacy • •	20 Non-Invasive Cardiology Laboratory **40 Vascular Laboratory**	Accounts specific to previous level to provide more detail if required.

Figure 7

Example 4: Cardiac catheterization laboratory services are represented by account number **71 3 40 37 00** (as illustrated in Figure 8):

7	1	3	40	37	00
Account Type	**Fund Type**	**Framework Section**	**FC Level 3**	**FC Level 4**	**FC Level 5**
1-6 Balance Sheet Accounts **7 Functional Centres for Revenue, Expense and Statistics** 8 Accounting Centre	**1 Operating Fund** 2 Inactive 3 Inactive 4 Board Designated 5 Capital 6 Special Purpose 7 Inactive 8 Endowment Revenue – Unrestricted 9 Endowment Revenue - Restricted	1 Admin & Support 2 Nursing Inpatient/ Resident **3 Ambulatory Care** 4 Diagnostic & Therapeutic 5 Community & Social Services 6 Inactive 7 Research 8 Education 9 Undistributed	10 Emergency 14 Telephone Health Services 20 Poison and Drug Information Services **40 Specialty Day/Night Care** 50 Specialty Clinics 55 Private Clinics	10 Medical 35 Cardiac **37 Cardiac Catheterization Laboratory** 50 Diabetes 60 Geriatric 65 Metabolic 70 Oncology 80 Mental Health & Addictions 85 Renal Dialysis 90 Rehabilitation	Accounts specific to previous level to provide more detail if required.

Figure 8

Individual frameworks are available for research and non-patient education. It is important that these activities are not included in the **71 4** functional centre as this will distort the performance indicators related to the provision of patient/client hospital/resident diagnostic services.

Prior to reporting workload, all functional centre account assignments should be reviewed to ensure that workload data can be correctly linked to functional centres. In most organizations there will only be one functional centre for each therapeutic discipline, but some larger organizations may elect to create lower level functional centres if the activities are provided by a distinct set of staff. This should only be done when the compensation, recoveries, expenses, and activities can be clearly isolated. If this is not possible, one functional centre is appropriate, and the workload statistics can be used to identify more specific details.

Individual frameworks are available for research and non-patient education. It is important that these activities are not included in the **71 4** functional centre as this will distort the performance indicators related to the provision of patient/client hospital/resident therapeutic services.

Purchased/Referred-Out Services

If the facility does not have a specific department and purchases or refers-out all its services, a specific functional centre is still required. All costs will be linked to this functional centre and all costs will show as a purchased service. Purchased service is recorded when non-facility staff provide service to patients/residents within the facility. Referred-out service occurs when people are sent to another facility for service and the service is paid for by the sending facility. However, if there is no cost to the facility a functional centre is not created, and no financial or statistical information is recorded.

Program Management/Multifunctional Centres

In cases where staff report to another discipline, workload, service activity and caseload status statistics and resources associated with these activities should still be reported in the discipline specific functional centre. Both statistics and expenses related to an activity must be reported in the same functional centre. The portion of workload and expenses related to various programs should still be identifiable for program-based reporting.

Greater Levels of Detail

Some organizations will elect to capture an even greater level of detail than requested for external reporting submissions. More detailed functional centres should only be established when it is reasonable and material to separate staffing, revenues, expenses, and statistics. If functional centres have been created to meet internal needs but are not valid accounts (i.e. not included in the provincial account code listing), these functional centres must be rolled up and reported under the appropriate MIS account.

Research (71 7)

The research framework section is designed to capture the expenses and revenues (if any) of research services. This would include health care professionals and technicians whose mandate is research. As

such, their hours and compensation are reported in this type of functional centre, not the discipline specific functional centre.

Compensation for unit-producing staff members that participate in research but are assigned to a discipline specific functional centre is reported in that functional centre. The workload related to data collection is reported as the non-service recipient activity, research and the workload related to clinical interventions is reported as the service recipient activity (assessment, therapeutic intervention, or consultation/collaboration), according to category of service recipient.

If a health care professional is involved to a significant degree (greater than 20%) in both research and service recipient activities, the compensation for this individual should be apportioned to both appropriate functional centres to reflect the actual expenses. The workload and portion of earned hours that resulted in service recipient activity (patient/resident/client hospital care) should be accounted for in the discipline specific functional centre and the workload and hours associated with the research should be accounted for in the research functional centre.

Education (71 8)

The education framework section is designed to capture the expenses and revenue (if any) of dedicated staff educators. This would include staff members that provide employee orientation sessions, in-service classes, or formal programs for students from educational organizations. As such, their hours and compensation are reported in this functional centre not the discipline specific functional centre.

Compensation for unit-producing staff members that provide staff education but are assigned to a discipline specific functional centre is reported in that functional centre. The workload related to education is recorded as the non-service recipient activity, teaching/ in-service.

If a health care professional is involved to a significant degree (greater than 20%) in both education and service recipient activities, the compensation for this individual should be expensed to both appropriate functional centres to reflect the actual activity. The workload and portion of earned hours that resulted in service recipient activity should be accounted for in the discipline specific functional centre and the workload and hours associated with education should be accounted for in the education functional centre.

Unit-producing staff members that provide service recipient education should be assigned to the appropriate discipline specific functional centre. The workload related to educating service recipients is recorded as the service recipient activity, therapeutic intervention.

Marketed Services Ancillary Operations (71 9 20 **)

Marketed services are business enterprises. The 719 20 ** functional centre pertains to health service organization activities that are supplemental to the organization's main services rather than activities related to service recipient care, education, research, and their support. Excludes operations which are recorded under 71 9 10 Marketed Non-Service Recipient Food Services Operations**.** Marketed service activities may be cost recovery or profit-generating activities. Any excess of cost over revenue/recovery becomes a part of the Cost per Standard Hospital Stay for the organization. Patient/resident/client hospital services are never classified as a marketed service even if a profit is generated. If the service is

funded outside of DHCS funding, the activity is designated as an “other fund” clinical service functional centre.

When services are financed by third parties that are not funding bodies, this is recorded as revenue and linked to the appropriate functional centre providing the service (e.g. Worker’s Compensation Commission, insurance, self-pay).

When services are provided for the service recipients or staff of another organization and this service is material, this is classified as a marketed service by the providing organization and a purchased service for the organization receiving the service. This would apply when a contract for the service has been negotiated and the service is continuous. All compensation and supplies must be distributed to the marketed service functional centre. It is recognized that in some situations a marketed service may be at cost. No service activity, caseload status or workload statistics are reported by the organization selling the service.

Example of marketed services:

If an organization is routinely providing services every Friday to another organization, the compensation and associated hours for the staff providing this service would be charged to the marketed service functional centre and all recoveries for this service would be credited to this functional centre.

The use of a marketed service functional centre will preserve the integrity of performance indicators for the provision of care by the organization.

Electrodiagnostic Laboratory Functional Centres

The following accounts are provincial accounts that match or mirror national primary accounts that are available for use by electrodiagnostic services. Each organization should use only those applicable to the size and specialization of their service. The decision to set up separate functional centres for various services should be made in consultation with the finance department staff.

71 4 25	Electrodiagnostic Laboratories
71 4 25 10	Electroencephalography (EEG)
71 4 25 20	Electromyography (EMG)
71 4 25 30	Evoked Potentials
71 4 25 40	Polysomnography
71 4 25 50	Intensive Monitoring
71 4 25 60	Electronystagmography/Electro-Oculography (ENG/EOG)
71 4 25 97	Electrodiagnostic Laboratories Residual

Definitions

71 4 25 Electrodiagnostic Laboratories

The functional centre pertaining to measurement and recording of electrical impulses to evaluate the brain and associated physiologic functions. Excludes data pertaining to electrocardiography (ECG) services (refer to Non-Invasive Cardiology and Vascular Laboratories 71 4 30).

71 4 25 10 Electroencephalography (EEG)

The functional centre pertaining to the measurement and recording of electrical impulses of the brain for the evaluation of brain function.

71 4 25 20 Electromyography (EMG)

The functional centre pertaining to the recording of electrical potential variations in nerve and/or muscles on an electromyograph, to facilitate the diagnosis of nerve and/or muscle dysfunction and neurological disorders.

71 4 25 30 Evoked Potentials

The functional centre pertaining to the recording of the responses of the brain to a variety of stimuli (auditory, visual, somato-sensory). In neurology it is essentially a diagnostic tool used in the evaluation of brainstem function as well as the evaluation of the functional integrity of sensory projection pathways in the central nervous system.

71 4 25 40 Polysomnography

The functional centre pertaining to the overnight recording of EEG with constant monitoring of EOG, EMGs, EKGs, multiple transducers for recording respiration, PO2 monitoring, etc. Sleep studies are a diagnostic tool used in the evaluation of inpatients/residents/client hospitals suspected of movement disorders, sleep apnea, hypersomnia's organic insomnia, etc.

71 4 25 50 Intensive Monitoring

The functional centre pertaining to the prolonged EEG recording (4-10 hours) using a video and radio telemetry system to document the EEG and certain electrophysiological characteristics of seizures of various types, i.e. absences, status, unusual attacks, and psychogenic seizures.

71 4 25 60 Electronystagmography/Electro-Oculography (ENG/EOG)

The functional centre pertaining to the recording of various forms of eye movements including those under volitional control and those under vestibular control. They are recordings used to help differentiate between dizziness due to inner ear problems and that due to brain pathology.

71 4 25 97 Electrodiagnostic Laboratories – Residual

The functional centre pertaining to the provision of electrodiagnostic laboratory services required by the health service organization, not reported separately in other level 4 accounts.

Related Functional Centres

71 7 40 Diagnostic and Therapeutic Services Research

The functional centre pertaining to formally organized research projects undertaken by personnel of the diagnostic and therapeutic services functional centres.

71 8 40 40 Diagnostic and Therapeutic Services In-Service Education

The functional centre pertaining to in-service education provided within the health service organization to personnel of the diagnostic and therapeutic services section.

71 8 70 25 Electrodiagnostic Laboratories Formal Education

The functional centre pertaining to the provision of formal education and experience in a clinical setting to students who are fulfilling the requirements of an Electrodiagnostic technology program, which is accredited by the respective provincial licensing body.

Non-Invasive Cardiology and Vascular Laboratory Functional Centres

The following accounts are provincial accounts that match or mirror national primary accounts that are available for use by non-invasive cardiology and vascular laboratory services. Each organization should use only those applicable to the size and specialization of their service. The decision to set up separate functional centres for various services should be made in consultation with the finance department staff.

71 4 30	Non-Invasive Cardiology and Vascular Laboratories
71 4 30 20	Non-Invasive Cardiology Laboratory
71 4 30 20 20	Echocardiography
71 4 30 20 40	Ambulatory Monitoring
71 4 30 20 60	Exercise Stress Testing
71 4 30 20 80	Electrophysiology
71 4 30 20 90	Electrocardiography (ECG)
71 4 30 40	Vascular Laboratory

Definitions

71 4 30 Non-Invasive Cardiology and Vascular Laboratories

The functional centre pertaining to performance of highly specialized non-invasive exams that determine the presence or extent of diseases of the heart and peripheral vascular system. Includes data pertaining to electrocardiography (ECG) services

71 4 30 20 Non-Invasive Cardiology Laboratory

The functional centre pertaining to the detection, localization, and quantification of cardiac disorders using highly specialized non-invasive diagnostic procedures.

71 4 30 20 20 Echocardiography

The functional centre pertaining to the use of echocardiography equipment for the evaluation of the size, position, configuration, and motion of structures of the heart; the assessment of anatomical relationships within the heart and the assessment of cardiac function. If this service is provided by medical imaging personnel, see Echocardiography Ultrasound 71 4 15 30 30.

71 4 30 20 40 Ambulatory Monitoring

The functional centre pertaining to the continuous ECG monitoring of an inpatient/resident/client hospital over a prolonged period (6-24 hours), while the service recipient goes about his or her usual daily activities.

71 4 30 20 60 Exercise Stress Testing

The functional centre pertaining to the use of exercise, according to specific criteria, for the purpose of detecting heart disease or for quantifying cardiorespiratory function.

71 4 30 20 80 Electrophysiology

The functional centre pertaining to the study of the electrophysiological properties of the heart through non-invasive means.

71 4 30 20 90 Electrocardiography (ECG)

The functional centre pertaining to the measurement and recording of electrical impulses of the heart for the evaluation of heart function.

71 4 30 40 Vascular Laboratory

The functional centre pertaining to the provision of non-invasive detection, localization and quantification of diseases affecting peripheral arteries and veins.

Related Functional Centres

71 7 40 Diagnostic and Therapeutic Services Research

The functional centre pertaining to formally organized research projects undertaken by personnel of the diagnostic and therapeutic services functional centres.

71 8 40 40 Diagnostic and Therapeutic Services In-Service Education

The functional centre pertaining to in-service education provided within the health service organization to personnel of the diagnostic and therapeutic services section.

71 8 70 30 Non-Invasive Cardiology and Vascular Laboratories Formal Education

The functional centre pertaining to the provision of formal education and experience in a clinical setting to students who are fulfilling the requirements of a diagnostic laboratory technology program, which is accredited by the respective provincial licensing body.

Cardiac Catheterization Laboratory Functional Centre

71 3 40 37	Cardiac Catheterization Laboratory Specialty Day/Night Care
71 4 05 55	Cardiac Catheterization Diagnostic Services Nursing
71 4 15 55	Cardiac Catheterization Diagnostic Services

Definitions

71 3 40 37 Cardiac Catheterization Laboratory Specialty Day/Night Care

The functional centre pertaining to the provision of invasive, hemodynamic, electrophysiologic, biochemical and angiographic study of the heart. Service recipients attend for 3 to 12 hours on average, typically as the result of a referral from a primary care practitioner. Excludes medical imaging personnel involved in the delivery of service (see functional centre 71 4 15 55).

71 4 05 15 55 Cardiac Catheterization Diagnostic Services Nursing

The functional centre pertaining to the services provided by nursing personnel when assisting with the clinical investigation and provision of nursing care to service recipients in the medical imaging cardiac catheterization diagnostic services functional centre. Excludes nursing services provided in Cardiac Catheterization Laboratory Specialty Day/Night Care (see 71 3 40 37).

71 4 15 55 Cardiac Catheterization Diagnostic Services

The functional centre pertaining to the provision of cardiac catheterization and angioplasty when the service is provided by medical imaging personnel. Excludes nursing services related to cardiac catheterization diagnostic services nursing (see 71 4 05 15 55) and Cardiac Catheterization Laboratory Specialty Day/Night Care (see 71 3 40 37).

Secondary Financial Accounts

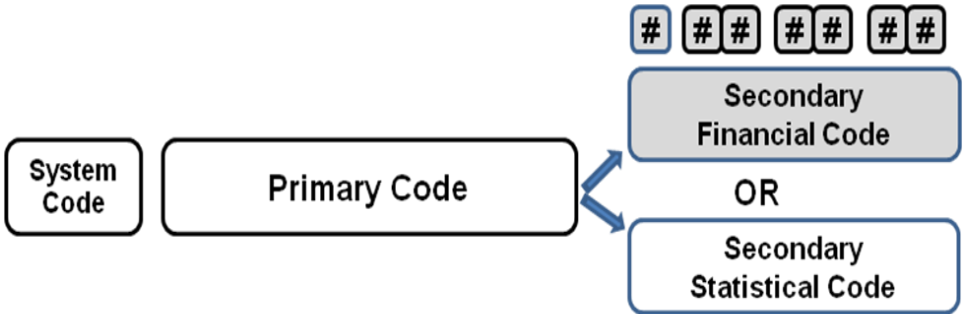

Figure 7

Secondary financial accounts are designed to provide additional information on the nature of revenues and expenses in an organization. Each secondary code is associated with an appropriate primary code. Financial accounts can then be linked to the secondary statistical accounts within the same functional centre to produce performance indicators for the functional centre. Secondary financial accounts establish the direct costs that are attributed to functional centres.

The secondary financial account code is made up of four distinct segments totalling seven coding positions. Secondary account codes are three, five or seven digits in length which are structured in a specific manner (see Figure 8).

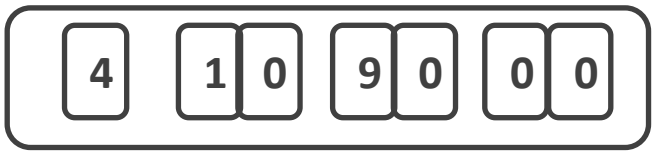

Figure 8

Broad Group

4 The first block is a single character which identifies the secondary financial broad group. Broad group 4 is supplies. (See Figure 9 for further broad groups)

Nature of Secondary Revenue or Expense

10 The second block is two characters long and defines the nature of the revenue or expense. In this example it is supplies – printing, stationery and office supplies.

Capture of Further Detail of Secondary Revenue or Expense

90 The third block is used to capture further detail and is specific to previous code block. In this example it is supplies printing, stationery and office supplies – general supplies.

Further breakdown of Secondary Revenue or Expense

00 In certain cases, the Newfoundland and Labrador Chart of Accounts, uses two more digits for further breakdown (provincially defined).

Example: Secondary financial account **4 77 00 00** is used to represent supply expenses specific to electrodiagnostic services (illustrated in Figure 9).

4	77	30	00
Broad Group	**Nature of Revenue and Expense**	**Capture of further detail**	**Capture of further detail**
1 Revenues 2 Inactive 3 Compensation **4 Supplies** 5 Traceable Supplies & Other Expenses 6 Sundry 7 Equipment Expense 8 Contracted-Out Services 9 Buildings and Grounds Expense	10 Printing Stationery and Office 15 Housekeeping 20 Laundry 25 Linen 50 Food 60 Medical Surgical 64 Pharmacy 70 Clinical Laboratory 75 Medical Imaging **77 Electro-Diagnostic** 80 Respiratory 82 Therapeutics	Accounts specific to previous level and provide further breakdown.	Accounts specific to previous level and provide further breakdown.

Figure 9

The broad groups of secondary financial accounts are:

Revenue

Revenue is defined as proceeds earned by the health service organization from all sources including payment for services provided to service recipients, recoveries, contributed services, donations, grants, and investment revenue. When revenue is generated in relation to clinical services for facility patients/residents/client hospital, this revenue is recorded as a recovery in the functional centre incurring the expense. This reduces the cost of providing service to these patients.

Compensation

Compensation is defined as the sum of gross salaries plus benefit contribution expenses. Compensation costs are linked to the functional centre.

To capturing and reporting compensation expenses, the MIS Standards require all staff of a functional centre be assigned to one (or more) of three broad occupational groups; then further categorized by type of earned salaries. By doing so, the accuracy of analysis is improved, and the degree of overhead support associated with the service is identified. The following is a list of broad occupational groups:

- management and operational support personnel (MOS)
- unit-producing personnel (UPP)
- medical personnel (MP)

For each broad occupational group, the types of earned salaries should be further categorized as:

- worked salaries
- benefit salaries
- purchased service salaries

Benefit contributions are an integral part of compensation expense. These costs must also be distributed to functional centres. The benefit contributions include salaries paid to casual and temporary staff in lieu of vacation, statutory holidays, and termination. No hours are attached to these payments and therefore they are not included in benefit hours.

Supplies

Supplies are consumable products used by a functional centre. Accounts exist for items ranging from paper, computer supplies, replacement parts, medications, and other clinical products. To make supply transaction coding more efficient, finance and materials management departments should coordinate the stores catalogue to link individual stock item codes to supply expense codes. All expense accounts should be reviewed to ensure that the items included in these accounts are appropriate and to ensure that the expenses for all functional centres are recorded accurately. Only those items used by the discipline specific departments should be charged to their functional centre.

Traceable Supplies and Other Expenses

These are consumable supplies or other expenses that:

- can be directly associated with a service such as an operative; procedure or drug intervention
- can be traced to a service recipient
- vary according to the clinical needs of the service recipient
- usually do not behave linearly with workload

Sundry

Sundry costs are those that do not fit into other categories. It includes items such as long-distance telephone charges, courier charges, travel expenses, etc. Most sundry expenses and some supply expenses are intended for administrative and support functional centres and are overhead costs for the organization. Some organizations have elected to distribute these costs to functional centres. The primary purpose for distribution is better accountability for expenses. An example of an overhead supply cost is laundry. An example of an overhead sundry expense cost is postage.

Equipment Expenses

Equipment expenses are the operating expenses of equipment, including maintenance, repairs, depreciation, gain or loss on disposal, interest on equipment loans and rental or lease expenses incurred, or any other operating expense incurred in the provision of equipment for use by functional centres in the facility. Depreciation costs for all equipment as well as preventative and repair costs for

all clinical equipment are to be expensed to functional centres. This will improve the comparability of costs across organizations. When comparing costs across organizations it is important to understand that there could be variations in the allocation methodology and reporting of these costs.

When comparing costs across organizations, it is important to note if the organization has a Reagent Lease Agreement in place. Such agreements enable the organization to pay a premium for the reagents used in return for provision of the equipment by the supplier. Therefore, equipment/lease costs will appear to be lower than those of organizations which purchase or lease equipment, however, reagent costs will be higher.

Contracted-Out Services

The contracted-out services expenses are those related to one of a group of services performed for the health service organization by a contracted-out third-party provider using their personnel and often their supplies, equipment and premises. The fee charged may include a cost for these items as well as a mark-up for employee benefits and administrative and support expenses**.**

Buildings and Grounds Expense

Those expenses that are associated with the building, its service equipment and the grounds are usually charged to an accounting centre because it is not reasonable or practical to distribute to all functional centres in the organization.

Select Secondary Financial Accounts Applicable to Electrodiagnostic, Cardiac and Vascular Laboratories

For a full listing of the Secondary Financial Accounts, accompanying definitions, and the required provincial reporting level and detail, please refer to the current version of *the Regional Health Authority Reporting Requirements User Guide*, or contact the financial department within the applicable Regional Health Authority.

Broad Group No. 1: Revenues

1 10	Revenue- Patient/Resident Services
1 20	Recoveries from External Sources
1 30	Contributed Services
1 40	Donations
1 50	Grants
1 60	Investment Revenue
1 70	Revenue from Other Funds
1 90	Other Revenue

Broad Group No. 3: Compensation

3 11	MOS Worked Hours

3 13 MOS Benefit Hours
3 14 MOS Benefit Contributions – Third Party
3 15 MOS Benefit Contribution Expenses
3 19 MOS Purchased Service Salaries

3 51 UPP Worked Hours
3 53 UPP Benefit Hours
3 54 UPP Benefit Contributions – Third Party
3 55 UPP Benefit Contribution Expenses - Individual
3 59 UPP Purchased Service Salaries

3 91 MP Worked Salaries
3 93 MP Benefit Salaries
3 94 MP Benefit Contributions – Third Party
3 95 MP Benefit Contribution Expenses - Individual
3 99 MP Purchased Service Salaries

Broad Group No. 4: Supplies

4 10 Supplies - Printing, Stationery and Office Supplies
- 4 10 10 Printed Forms
- 4 10 20 Paper Stock
- 4 10 25 Printing Supplies
- 4 10 60 Microfilm
- 4 10 70 Information Technology Supplies
- 4 10 90 General Office Supplies

4 15 Supplies - Housekeeping
4 20 Supplies - Laundry
4 25 Supplies - Linen
4 28 Supplies - Linen Reusable - Interdepartmental
4 30 Supplies - Plant Operation
4 35 Supplies - Plant Maintenance
4 40 Supplies - Plant Maintenance Equipment
4 45 Supplies - Biomedical Engineering
4 50 Supplies - Food
4 55 Supplies - Dietary
4 60 Supplies - Medical and Surgical
- 4 60 10 Donated Organs - Cost of Acquisition
- 4 60 20 Prostheses

4 64 Supplies - Pharmacy (Packaging and Compounding)
4 65 Supplies - Drugs
4 66 Supplies - Medical Gases
4 70 Supplies - Clinical Laboratory

4 75 Supplies - Medical Imaging

4 75 10	Film Radiology
4 75 20	Cassettes
4 75 30	Contrast media
4 75 40	Radioactive Materials
4 75 65	Processing Chemicals
4 75 70	Electronic Archival Supplies
4 75 90	Medical Imaging Supplies Not Elsewhere Classified

Definitions for Electrodiagnostic, Cardiac and Vascular Laboratories Supplies

4 77 Supplies - Electro-Diagnostic

This account is used to record the expense of such items as leads, electrodes, skin contact preparations, special recording paper or strips, and other general supplies specifically used in electrodiagnostic procedures. A sub-category of: Supplies, Broad Group 4.

4 80	Supplies - Respiratory
4 82	Supplies - Therapeutic
4 85	Supplies - Research
4 90	Supplies - Education
4 95	Supplies - General

Broad Group No. 5: Traceable Supplies and Other Expenses- Not Applicable

Broad Group No. 6: Sundry

6 10		Departmental Sundry
	6 10 10	Postage
	6 10 15	Delivery and Courier
	6 10 18	Communications Charges
	6 10 20	Long Distance Charges
	6 10 40	Tuition – Students
	6 10 53	Scholarships (Privately Funded)
6 15		Continuing Education Fees and Materials
	6 15 20	Academic Course Fees and Materials
	6 15 30	Workshop Fees and Materials
	6 15 40	Conference Fees and Materials
6 20		Travel Expense - Service Recipient
	6 20 10	Local Travel
	6 20 12	Provincial/Territorial Travel
	6 20 14	Out of Province/Territory Travel
6 22		Travel Expense - Board
	6 22 10	Local Travel

6 22 12 Provincial/Territorial Travel
6 22 14 Out of Province/Territory Travel

6 23 Travel Expense - Staff
6 23 10 Local Travel – Other than Service Recipient-Related - Staff
6 23 12 Provincial/Territorial Travel - Other than Service Recipient-Related - Staff
6 23 14 Out of Province/Territory Travel
6 23 15 Insurance Reimbursement – Staff
6 23 20 Service Recipient-Related Travel – Staff
6 23 25 Travel Expense – Education – Staff

6 26 Travel Expense - Recruitment and Relocation
6 26 10 Recruitment
6 26 20 Relocation

6 30 Bank Charges
6 40 Data Communication Charges
6 50 Professional Fees

6 60 Other Fees
6 60 10 Licence Fees
6 60 20 Membership Fees
6 60 30 Accreditation Fees
6 60 40 Subscription Fees
6 60 90 Other Fees - Other

6 70 Advertising
6 75 Public Relations
6 80 Insurance
6 85 Board Honorariums

6 95 Sundry Expenses - Not Elsewhere Classified
6 96 Meeting Expense (For expensing internal catering)
6 97 Interdepartmental Services

Broad Group No. 7: Equipment Expense

7 10 Equipment Maintenance – External
7 10 22 Software Maintenance – Contract
7 10 24 Equipment excluding Information Systems Maintenance - Contract
7 10 25 Information Systems Equipment Maintenance - Contract
7 10 42 Software Maintenance – Other
7 10 44 Equipment excluding Information Systems – Maintenance – Other
7 10 45 Information Systems Equipment Maintenance - Other

7 20 Equipment Maintenance - Interdepartmental
7 30 Replacement of Major Equipment Parts

7 30 24 Replacement of Major Equipment excluding Information Systems Parts
7 30 25 Replacement of Information Systems Major Equipment Parts

7 50 Amortization on Major Equipment - Distributed
7 51 Net Gain or Loss on Disposal of Major Equipment
7 55 Interest on Major Equipment Loans

7 60 ** Rental/Lease of Major Equipment
7 65 Minor Equipment Purchases
7 65 24 Minor Equipment excluding Information Systems Purchases
7 65 25 Information Systems Minor Equipment Purchases

7 70 Minor Equipment Purchases – Information Technology
7 80 Amortization - Software Licences and Fees
7 85 Software Licences and Fees
7 90 Equipment Expense - Not Elsewhere Classified
7 90 24 Equipment Expense excluding Information Systems - Not Elsewhere Classified
7 90 25 Information Systems Equipment Expense - Not Elsewhere Classified

Broad Group No. 8: Referred-Out Services

8 05 Contracted From A Non-Affiliated Health Service Organization
8 15 Contracted From an Affiliated Health Service Organization
8 25 Contracted From a Privately-Owned Company

Broad Group No. 9: Buildings and Grounds Expense – Undistributed

Secondary Statistical Accounts

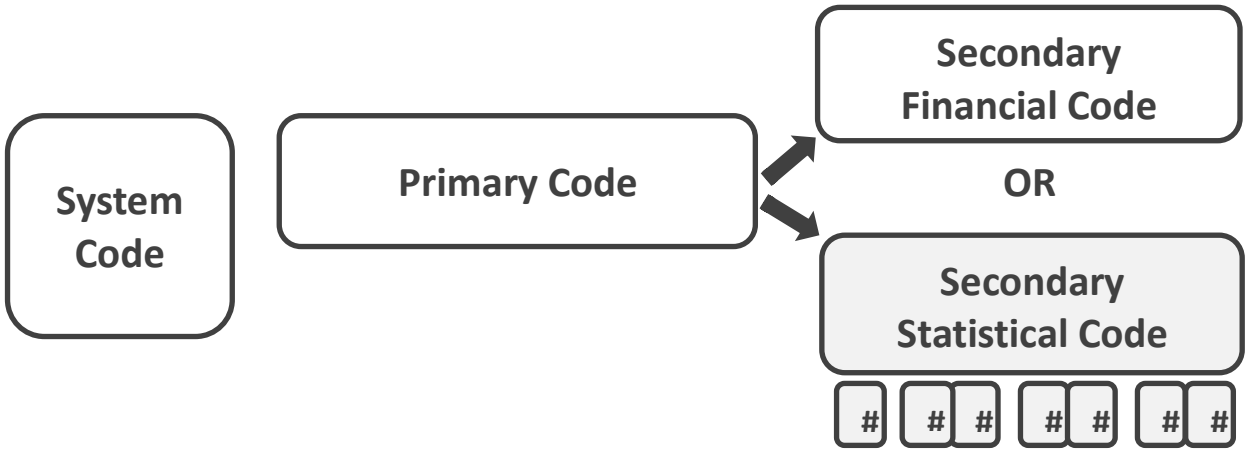

Figure 10

Secondary statistical accounts are designed to provide additional information on the nature of activities that occur within an organization. Each secondary code is associated with an appropriate primary code. Statistical accounts can then be linked to the secondary financial accounts within the same functional centre to produce performance indicators for the functional centre.

The secondary statistical account code is made up of four distinct segments totalling seven coding positions. Secondary account codes are three, five or seven digits in length. As with financial secondary accounts the first digit identifies the broad group. The remaining blocks provide additional detail with the meaning of each segment being dependent on the code used in the preceding segment.

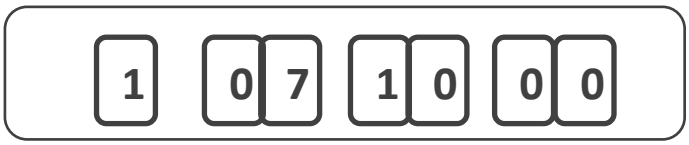

Figure 11

Secondary Statistical Accounts

1 The first block is a single character that identifies the secondary statistical broad group. In this example broad group 1, workload is used (see Figure 12 for further broad groups).

Nature of Statistic

07 The second block consists of two characters and identifies the statistic itself and is specific to the previous code block (example – workload units, inpatient admissions, etc.).

Capture of further detail of the Statistic

10 The third block is used to capture further detail and is related the nature of the statistic and is specific to the previous code block (example – category of service recipient).

Further breakdown of the Nature of Statistic

00 The fourth block is used to provide even greater detail on the nature of the statistic.

Example: Secondary statistical account 1 07 10 is used to represent inpatient workload service recipient units specific to electrodiagnostic, non-invasive cardiology and vascular laboratories.

1	07	10	00
Broad Group	**Nature of Statistic**	**Capture of Further Detail**	**Additional Breakdown**
1 Workload 2 Staff Activity 3 Earned Hours 4 Service Activity and Caseload Status 7 Functional Centre Operation 8. Health Service Organization Operation & Contracted-Out Services	Workload Units -Service Recipient Activities 02 Workload Units Service Recipient Activities 03 Drug Distribution **07 Diagnostic Therapeutic** 08 Respiratory Services 13 Food Services 14 Health Records 16 In-House Therapeutic 18 In-House Clinical Lab	Category of Service Recipient **10 Inpatient** 20 Client Hospital 40 Resident 80 Client Community 90 Client Home Care	Accounts specific to previous level and provide further breakdown.

Figure 12

The MIS Standards organizes all statistical data into six broad groups that identify the nature of the statistic. These broad groups are further explained on page 28.

Secondary statistical accounts can only be reported at the level defined by the Department of Health and Community Services in the Provincial Chart of Statistical Accounts. If lower level accounts have been created for internal use, these must be "rolled-up" to the provincial account prior to data submission.

All statistics must be reported in the same functional centre as the activity took place. This includes earned hours, service activity and caseload status statistics. Workload, staff activity, functional center and health service organizations and contracted out services?

The broad groups of secondary statistical accounts are:

Workload

Workload statistics are those applicable to functional centres that have a workload measurement system (WMS) in the MIS Standards such as nursing, nutrition services, speech-language pathology, electrodiagnostic, non-invasive cardiology and vascular laboratory and pharmacy. This workload data is important to functional centres as it provides information for the analysis of service volumes, productivity, and costs.

Workload, service activity and caseload status statistics must be recorded separately for each category of service recipient. This separation supports more detailed analysis of the data, providing an understanding of different resource needs, as well as supporting external reporting requirements.

Staff Activity

Staff activity statistics pertain to select activities performed by staff when fulfilling the service mandate of the functional centre. In some cases, these statistics may be used as a surrogate workload measure for functional centres that do not have a workload measurement system in the MIS Standards. For example, laundry can track the number of kilograms of clean linen issued, human resources can track the number of grievances resolved and payroll can track the number of pay cheques/stubs issued.

Earned Hours

Earned hours statistics are those that categorize earned hours by broad occupational group and type of hour. This data is collected by the organizations' compensation systems (payroll).

Service Activity and Caseload Status

Service activity and caseload status statistics pertain to the service activities provided by the nursing in-patient services and ambulatory care, diagnostic and therapeutic services, and community health services functional centres. Examples of service activity statistics include visits - face-to-face, visits - non-face-to-face, in-house exams, and inpatient days. These statistics supplement workload information by defining the complexity of service activities provided and are used to determine costs for these activities. Caseload status statistics describe the status of service recipients of current, past, and future caseloads (i.e. admissions, discharges, transfers, and new referrals).

Workload, service activity and caseload status statistics must be recorded separately for each category of service recipient. This separation supports more detailed analysis of the data, providing an understanding of different resource needs, as well as supporting external reporting requirements.

Functional Centre Operation

Functional centre operation statistics are specific to the operation of a functional centre. They include those that describe its characteristics (e.g. physical size or capacity), catchment population and personnel complement.

Health Service Organization Operation and Contracted-Out Services

Health service organization operations and contracted-out services statistics pertain to the operation of the health service organization. They include the number of cardiac arrests, medication errors, different types of revenue days, s receiving home health/home support services and changes in employee status. They also include data related to the physical facility, such as energy consumption, heating days and cooling days and to those services that are provided by a contracted-out third-party provider.

Service Activity Statistics

Service activity statistics are captured in functional centres providing service recipient care. They identify the volume of activities that are provided to specific service recipients. Service activity statistics supplement workload data in providing valuable management information on the resources required in the provision of specific services. They are intended to be used with the corresponding workload data to measure functional centre productivity and the resource consumption of specific service activities. They can also be used with functional centre statistics to cost service recipient activity.

The service activity statistic for electrodiagnostic, non-invasive cardiology and vascular functional centres is the in-house exam – diagnostic/therapeutic. An in-house exam is defined as the diagnostic/therapeutic examinations performed by the health service organization's personnel. It is a sub-category of service activity and caseload status, broad group 4.

Service activity statistics are to be reported by the following functional centres:

- 71 4 25 Electrodiagnostic Laboratories
- 71 4 25 10 Electroencephalography (EEG)
- 71 4 25 20 Electromyography (EMG)
- 71 4 25 30 Evoked Potentials
- 71 4 25 40 Polysomnography
- 71 4 25 50 Intensive Monitoring
- 71 4 25 60 Electronystagmography/Electro-Oculography (ENG/EOG)
- 71 4 25 97 Electrodiagnostic Laboratories Residual
- 71 4 30 Non-Invasive Cardiology and Vascular Laboratories
- 71 4 30 20 Non-Invasive Cardiology Laboratory
- 71 4 30 20 20 Echocardiography
- 71 4 30 20 40 Ambulatory Monitoring
- 71 4 30 20 60 Exercise Stress Testing
- 71 4 30 20 80 Electrophysiology
- 71 4 30 20 90 Electrocardiography (ECG)
- 71 4 30 40 Vascular Laboratory

Secondary statistical account **4 57 10 00** is used to represent the service activity called in-house exam related to an inpatient in a hospital setting (illustrated in Figure 13)

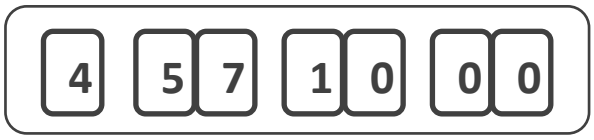

Figure 13

Example: Statistical account 4 57 10 is used to represent service activity inpatient in-house exams.

4	57	10	00
Broad Group	**Nature of Statistic**	**Capture of Further Detail**	**Additional Breakdown**
1 Workload 2 Staff Activity 3 Earned Hours **4 Service Activity & Caseload Status** 7 Functional Centre Operation 8 Health Service Organization Operation & Contracted-Out Services	Service Activity and Caseload Status Statistics 01 Inpatient Admissions 03 Inpatient Days 50 Visits - Face-to-Face 56 Visits – Non-Face-to-Face **57 In-House Exams** 63 Laboratory Intervention 83 Attendance Days – Face-to-Face 85 Attendance Days - Non-Face-to-Face 89 New Referrals 90 Active Carryovers	Category of Service Recipient **10 Inpatient** 20 Client Hospital 40 Resident 80 Client Community 90 Client Home Care	Accounts specific to previous level and provide further breakdown.

Figure 14

The same category of service recipient should be used for service activity statistics as for workload units to identify the resource consumption of specific categories of service recipients.

By Category of Service Recipient

4 57 10	Inpatient
4 57 20	Client Hospital
4 57 30	Referred-In (national account that is not used in NL)
4 57 40	Resident
4 57 80	Client Community

Schedule of Unit Values

The schedule of unit values provides a coding system for identifying most activities performed in a department. Additionally, it indicates the exam that should be counted and lists the unit values for each. Each exam is assigned a MIS code and is listed in the discipline specific service recipient activity list. Each activity in the schedule of unit values should be reviewed to ensure the workload unit value is accurate and reflective of the realistic average time required to perform a specified activity. The NL Electrodiagnostic, Non-Invasive Cardiology and Vascular Lab Schedule of Unit Values was implemented in each RHA in 2016.

Workload Measurement System

Workload Measurement System

A workload measurement system (WMS) is defined as a tool for measuring the volume of services provided in terms of a standardized unit of productive personnel time and serves as a:

- department management tool to provide systematic quantification of workload to assist in staffing, planning, budgeting, and performance monitoring
- standardized method for recording workload that will yield uniform data for internal and external reporting, permitting historical trending and selective national and peer group comparisons

The Generic Workload Measurement and Reporting Framework provides a model for data collection and reporting for many clinical disciplines while enabling users to customize the level of detail for their discipline or service.

Workload is collected for all activities that are undertaken on behalf of a service recipient. A service recipient is defined as the consumer of primary service activities of one or more functional centres of the health service organization. Service recipients include individuals (e.g. inpatient, residents, client hospitals) and their significant others. Significant others are individuals who are acting on behalf or in the interest of the service recipient, such as parent, spouse/partner, child, legal guardian, or substitute decision-maker.

Note: There are other individuals who act on behalf of or in the interest of service recipients but are not considered to be a "significant other." Examples include ministers, teachers, lawyers, or other health care professionals. The time spent with these individuals is recorded as the service recipient workload, consultation/ collaboration. No service activity statistic is recorded.

Recording Workload

Workload is recorded by unit producing personnel (UPP). UPP perform activities that directly contribute to the fulfillment of the service mandate of the functional centre. Management and operational support personnel do not record workload.

The allocation of individual staff members to broad occupational groups should be reviewed to determine the appropriate identification of unit-producing staff to ensure that worked hours and workload are matched. Management staff routinely participating in unit-producing activities should have their compensation divided between management and operational support and unit-producing personnel.

Managers who perform unit-producing activities should collect workload for this activity if it consumes more than 20% of their time. In some situations, it may even be advisable to collect workload for individuals who spend smaller percentages of their time providing clinical service. This would depend on the size of the service and the impact on productivity indicators.

In today's environment, traditional management duties are often delegated to UPP staff, although this may not be greater than 20% for any individual staff member. These staff members are designated as UPP with UPP worked hours and non-service recipient activity workload is used to record time for management work. Clinical leaders are not unit producers if their primary role is management. When comparing performance indicators across organizations, knowledge of the service delivery model is essential. Although these models may reduce overhead costs in traditional administrative functional centres and reduce reported management hours in diagnostic and therapeutic functional centres, there may be an offsetting increase in the cost per workload unit as UPP non-service recipient activity workload may increase.

If a UPP staff member is responsible for management activities on an occasional basis, this time is recorded as non-service recipient activity (functional centre activities) within UPP worked hours. If an individual is responsible for management activity for greater than 20% of their time, the worked hours of these staff should be divided between MOS and UPP categories. No workload is recorded for the management portion of their time.

For example, a technologist II is a UPP due to the large amount of service recipient work performed by that person. Other technologists II may be considered MOS if the primary role is supervisory. If a technologist II's time is spent in both service recipient work and supervisory roles, then the person should be assigned to both categories, based upon the proportion of time spent in each area. Such a split assignment should be arranged with your finance department to ensure correct financial and statistical reporting is accommodated for that person.

Electrodiagnostic, Non-Invasive Cardiology and Vascular Laboratories Workload Measurement System

The electrodiagnostic, non-invasive cardiology and vascular laboratory WMS applies to these functional centres:

71 4 25	Electrodiagnostic Laboratories
71 4 25 10	Electroencephalography (EEG)
71 4 25 20	Electromyography (EMG)
71 4 25 30	Evoked Potentials
71 4 25 40	Polysomnography
71 4 25 50	Intensive Monitoring
71 4 25 60	Electronystagmography/Electro-Oculography (ENG/EOG)
71 4 25 97	Electrodiagnostic Laboratories Residual (P)
71 4 30	Non-Invasive Cardiology and Vascular Laboratories
71 4 30 20	Non-Invasive Cardiology Laboratory
71 4 30 20 20	Echocardiography
71 4 30 20 40	Ambulatory Monitoring
71 4 30 20 60	Exercise Stress Testing
71 4 30 20 80	Electrophysiology
71 4 30 20 90	Electrocardiography (ECG)

71 4 30 40 Vascular Laboratory

Electrodiagnostic, Non-Invasive Cardiology and Vascular Laboratories Workload Measurement System

Conceptual Model for Electrodiagnostic, Non-Invasive Cardiology and Vascular Laboratories

Workload Categories	SERVICE RECIPIENT ACTIVITIES	NON-SERVICE RECIPIENT ACTIVITIES			
Activity Categories	**Diagnostic Intervention**	**Functional Centre Activities**	**Organizational/ Professional Activities**	**Teaching/ In-service**	**Research**
Component Activities	Electrodiagnostic Electroencephalography (EEG) Intensive Monitoring Electromyography (EMG) Electronystagmography (ENG) Polysomnography Evoked Potentials Non-Invasive Cardiology Electrocardiography Exercise Tolerance Testing Pacemaker Analysis Ambulatory Monitoring Echocardiography Vascular Lower Limb – Arterial Lower Limb – Venous Upper Limb – Arterial Upper Limb – Venous Head and Neck Visceral	Functional Centre Management Employee Meetings Caseload Management Maintenance Quality Management Travel for Functional Centre Activities Travel to and from the place where service recipient activities are provided*	Board/Committee Functions Public Relations Professional Activities Advocacy - Professional Program Management Travel	Students Professionals Academic In-Service Education Travel	Project 1 Project 2 Travel

Figure 15

**Note: Organizations that are involved in a lot of travel "to and from the place where the service recipient activities are provided" may want to report this travel separately.*

The electrodiagnostic, non-invasive cardiology and vascular laboratories WMS classifies workload into two major categories:

- service recipient activities; and
- non-service recipient activities.

Service recipient activities are unit-producing personnel activities that involve the delivery of services to or on behalf of a specific service recipient. These activities directly contribute to the fulfillment of the primary service mandate of the functional centre. Service recipient activities in electrodiagnostic, non-invasive cardiology and vascular laboratories are classified as:

- diagnostic intervention.

Non-service recipient activities are unit-producing personnel activities that are integral to the functional centre's operations, but do not involve the delivery of services to service recipients and/or their significant others. Non-service recipient activities in electrodiagnostic, non-invasive cardiology and vascular laboratories are categorized as follows:

- functional centre activities
- facility/community/professional activities
- teaching/in-service
- research

The specific component activities listed under the activity categories are provided as examples only. Users who wish to record and report workload at this level are encouraged to identify and define the activities standard to their profession and/or that are reflective of the service activities of their functional centre.

Service Recipient Activities

All work on behalf of service recipients (e.g. inpatients, residents, client hospital, etc.) is recorded, even if outside regular working hours (e.g. during overtime hours), but not unpaid worked hours. This is necessary to have a full understanding of service needs and potential costs.

Service recipient workload activities are all classified in an activity category of Diagnostic Intervention. This is further defined as:

Diagnostic Intervention refers to an activity carried out/service provided that is often individually designed for a specific service recipient or group of service recipients and/or their significant other(s) that is associated with assessing the presence, absence or status of a disease process or health condition.

The diagnostic intervention activity time includes:

- **initial handling/set-up** includes all the steps associated with the initial information/demographic data entry into the computer system that is used to conduct

the exam. It also includes, where applicable, all steps relating to the review of requisitions for completeness and appropriateness

- **assessment and instruction** includes the activities associated with assessing the service recipient's status (e.g. history, vital signs), consulting the service recipient's health record or other staff members, as required by the exam. It also includes the time necessary to explain the exam to the service recipient
- **technical exam:** Includes the steps involved in the actual examination, including application and removal of electrodes where applicable, monitoring of the service recipient prior to, during and following the exam, recording of observations, and preparing tracings where applicable
- **clean up:** Includes the steps associated with the cleanup of the service recipient area and equipment, as well as, the disassembly of equipment for sterilization. Excludes major equipment cleaning
- **recording and reporting.**

Non-Service Recipient Activities

Non-service recipient activities are integral to the functional centre's operations, but they do not involve the delivery of services to service recipients and/or their significant others. Non-service recipient workload is divided into four main components (see below) and has the following characteristics:

- it is not directly related to service recipient care but supports the activity of the department/program, the organization, or the community
- it includes activities related to education or research
- it is not normally census driven

Functional Centre Activities

Functional centre activities are activities required for the operation/maintenance of the functional centre and for the benefit of staff. This category includes but is not limited to:

- **Functional Centre Management**: Includes but is not limited to:
    - housekeeping/clerical activities
    - organizing files
    - orienting staff
    - recording and calculating workload and other statistical data
    - preparing non-clinical documentation
    - compiling data for reports and management purposes
    - management activities related to discipline specific activity
    - development of discipline specific service programs
- **Employee Meetings**: Includes, but is not limited to, formal and informal meetings of functional centre staff for the purpose of disseminating and receiving information pertaining to the operation of the functional centre and the organization

- **Caseload Management**: Includes, but is not limited to, prioritization and assignment of service recipients within a caseload, receiving of referrals, etc.

- **Maintenance**: Includes, but is not limited to, activities such as maintaining a safe, tidy environment, maintenance of equipment and inventory control

- **Quality Management**: Includes, but is not limited to, time spent attending quality management meetings, performing, and documenting activities that improve the quality of services delivered in keeping with organizational policies and industry standards

- **Travel**: Includes, but is not limited to, internal and external travel associated with the activities listed above, as well as travel associated with the provision of services to service recipients within the organization or in their home. Also includes portering* of service recipients when performed by staff

**Portering of service recipients is considered a non-service recipient activity, under activity category functional centre activities when it does not require the skills of your discipline.*

Organizational/Professional Activities

Organizational/professional activities are performed for the general functioning and direct benefit of the organization, community, or profession. Such activities may include:

- **Board/Committee Functions:** Activities performed during worked hours relating to the preparation, attendance, and follow-up of health service organization board/committee functions (e.g. Accreditation Committee meetings, Occupational Health and Safety Committee work)

- **Program Management:** Management activities related to multidisciplinary program(s) and program management activities related to the organization as a whole

- **Public Relations:** Activities directly associated with the public relations function of the health service organization. Includes, but is not limited to, planning, meetings, and participation in the event (e.g. media events, information programs, preparing articles for publication, etc.)

- **Professional Activities:** Services provided to the professional, scientific, and local communities, agencies, and service groups during worked hours (e.g. participation in professional association committees)

- **Advocacy-Professional:** Activities related to advocacy on behalf of your profession

- **Travel:** Internal and external travel associated with the above organizational/ professional activities

Teaching/In-Service

Teaching/in-service includes activities devoted to the dissemination of knowledge by functional centre staff, through lectures, presentations, observations, or direct participation, to individuals other than service recipients. It includes, but is not limited to, clinical placements of students, information sessions for other staff, formal lectures to university/college students. This also includes in-service education received by staff. Some examples include:

- **Students**: Activities associated with the preparation, orientation, instruction, supervision and/or evaluation of students prior to, during or immediately following their clinical placements. Excluded are service recipient related activities performed while teaching.

- **Professionals:** Activities associated with the preparation, orientation, presentation and/or instruction of other professional staff

- **Academic:** Activities involved in the preparation and presentation of course/lecture material to students and evaluation of students as part of their academic curriculum

- **In-Service Education:** Activities include, but are not limited to, receiving usually brief, in-house educational information sessions presented by other staff of the organization, orientation to new procedures or equipment, grand rounds and reading of professional journals, books, and on-line articles

- **Travel:** Internal and external travel associated with the above teaching/in-service activities

Note: Professional development, which is tracked by the payroll system as a benefit hour (usually as education leave), is excluded from this in-service education definition. Professional development activities are longer, more formal, discipline-specific and are usually greater than ½ day in duration. Professional association annual conferences, courses, symposiums, seminars, and workshops are examples of typical professional development activities. It also includes related travel.

Research

Research is defined as formally designed and approved clinical investigations directed towards advancing knowledge in the field of health and the delivery of health services, using recognized methodologies and procedures. This category includes activities performed during worked hours such as reviewing previous research, writing research proposals, compiling, and analyzing data, report writing, and travel related to these activities.

It excludes the provision of service recipient activities, which is provided as a part of the research program. These are recorded as service recipient workload units under the appropriate category.

Note: Informal research is recorded as non-service recipient, teaching/in-service workload.

Recording Methodology

The purpose of a workload measurement system is to track the hands-on time, in minutes, that unit-producing personnel spend performing the activities/tasks that fulfill the mandate of the functional centre. The time being tracked should be reflective of all service recipient and non-service recipient activities performed by the unit-producing personnel of the specific functional centre and be collected in a consistent manner. If the time is not reflective of the work, performance indicators will not be accurate and comparative reporting will be compromised.

The following describes the three different time recording methodologies: actual, average, and standard time recording. The method employed will vary from functional centre to functional centre, from organization to organization, and from one type of workload being collected to another. Service recipient activities within the electrodiagnostic, non-invasive cardio and vascular laboratories WMS are primarily based on the average time recording methodology. However, a standard time may work well for recording time associated with a specific service recipient workload activity that is performed frequently and for which no average unit value has been published. Standard time may also be used in those cases when the published average unit value does not reflect the time required to perform the activity (i.e. the published average unit value is either too high or too low). On the other hand, actual time recording may be the best methodology to record non-service recipient activities.

One workload unit is equal to one minute of UPP time spent performing service recipient and non-service recipient activities of a functional centre.

One Workload Unit = One Minute

Figure 15

The Generic Workload Measurement and Reporting Framework has been designed to support collection of workload using either an actual, average, or standard time recording system.

Actual Time Recording

The actual time spent providing service recipient and non-service recipient activities are recorded retrospectively (after the fact). This can be accomplished by recording the time associated with an activity completed.

The most accurate way to record the exact time spent providing service recipient and non-service recipient activities is using a watch. Each UPP would do this retrospectively throughout each calendar day. This method may be appropriate for recording times for activities that are not performed often or those in which the time varies from occasion to occasion. It may not be advantageous however to record workload data in this way for all activities. It would be an onerous task for the staff to do on a day-to-day, hour-by-hour basis and may take valuable time away from fulfilling the mandate of the functional centre.

The use of time blocks may be one way to ease the workload data collection burden. Time blocks should be no more than 10 minutes to minimize variances due to rounding. Depending on the length of time it takes to perform most procedures, time blocks of five minutes or less may be more appropriate to use. Although some error may be introduced, this is generally insignificant since the variances due to overestimating and underestimating the actual time spent tends to be offset when summed. Time should be captured as precisely as possible to ensure accurate data. All blocks should be converted to minutes at the end of the reporting period (see Figure 18)

The following steps are integral to this methodology:

Step 1: Prepare a time block schedule as follows:

Minutes Spent Performing Workload Activity	Time Blocks
1-2	0
3-7	5
8-12	10
13-17	15
18-22	20
23-27	25
etc.	

Figure 18

Step 2: Develop a time block recording system whereby all unit-producing personnel would refer to their watch when they have completed an activity. The appropriate number of time blocks would be recorded to reflect this. For example, if Mary Smith attended a functional centre meeting for 50 minutes, she would record five-time blocks under the non-service recipient functional centre activity category.

Step 3: At the end of the reporting period, all time blocks are converted to minutes by multiplying the sum of the time blocks in a workload activity category by ten to determine the workload units. For example, if 10 activities with a time block of 6 were collected and 20 activities with a time block of 5, then the total workload in minutes is (10 activities x 6-time blocks x 10 minutes = 600) + (20 activities x 5-time blocks x 10 minutes = 1000) = 1600 minutes or 1600 workload units.

Average Time Recording

The average time-recording methodology uses specific unit values that have been assigned to activities, based on time studies undertaken at a national level across a sample of Canadian health care organizations of varying size and type. The average times applicable to electrodiagnostic, non-invasive cardio and vascular laboratories services are included in the Schedule of Unit Values in MIS Standards. The published unit values represent the average number of minutes of unit-producing personnel hands-on time that it takes to complete a defined activity once. At the end of the reporting period, the unit values are multiplied by the number of times this activity was performed to arrive at the 'total workload units per activity'. The sum of all activity totals yields the total number of minutes of unit-producing

personnel time spent in the performance of service recipient activities where the average time methodology is used.

Average time values developed through time studies should be considered as "points of reference" rather than absolute measures of the time required to perform an activity. The responsibility for the relevancy and accuracy of the timings ultimately rests with the organization that is collecting WMS data.

Though the list of activities and the published unit values are reviewed regularly, there may be situations whereby the published average time may not be reflective of the work performed by the unit-producing personnel. In these circumstances, organizations are encouraged to conduct a time study and submit the results to the Provincial Electrodiagnostic, Non-invasive Cardiology and Vascular Laboratory MIS Committee for review. The MIS Committee will forward any provincial changes to CIHI for consideration and possible inclusion in the schedule of unit values.

Standard Time-Recording

If average times are not reflective of the work performed by the unit-producing personnel in a specific functional centre, Electrodiagnostic, Non-invasive Cardiology and Vascular Laboratory may choose to use standard time for collecting workload data as an alternative to using the average time recording methodology. Standard times are assigned to activities performed by the staff of the functional centre, where each standard time represents the functional centre's average time to perform the exam for the average service recipient by the average service provider under average circumstances. Standard times are site-specific averages and therefore reflect the style of practice and the environment in which the service is provided. A health service organization may wish to conduct a concurrent evaluation to determine the appropriateness of the standard times if there is any concern that the standard times may be inaccurate or if an operational or technological change has occurred. Organizations should review/revise their standard times at least annually to ensure ongoing reliability and validity of the data collected.

Standard times can be developed using a variety of methods including but not limited to:

- **Work sampling:** In work sampling, random observations are made of service providers to determine the ratio or percentage of time an activity occurs within a given period

- **Activity time studies:** Time studies measure the time required by a service provider to perform a given task/procedure following a specified method under typical working conditions. The steps used in conducting a time study to determine a standard time are the same as those used to conduct a time study for the development of an average time (see Conducting a Time Study page 52 for more detail)

- **Consensus approach:** Expert opinion within the health service organization is used to determine standard times by consensus

- **Published standards:** Published time values can be used by health service organizations to develop their standard times

- **Combination of several methods**: Standard times can be developed using a combination of methodologies such as those described above

When developing standard times for activities the following steps should be used:

1. develop a functional centre master activity profile:
    - identify all exams/activities performed by the unit-producing personnel of the functional centre
    - describe the tasks included in each of the defined exams/activities
    - group each exam/activity into the appropriate workload category - service recipient activities and non-service recipient activities
2. develop standard times:
    - include initial handling/set-up, service recipient preparation/instructions, diagnostic/therapeutic activities, service recipient assistance, clean-up, and clinical documentation time in the standard time for exams
    - develop a standard time for each defined exam/activity and determine the method that will be used to determine the standard time
3. develop a workload recording system:
    - list the exams/activities identified in Step 1 and their corresponding standard times
    - develop a recording system (manual or computerized) which allows for a tally of exams/activities, categorized by workload or activity category, and by category and type of service recipient (e.g. inpatient, client hospital, resident)

Conducting a Time Study

One of the ways to develop average times nationally, or standard times locally, is to conduct a time study within a functional centre. The goal is to determine the average time it takes the average service provider to perform a activity for the average service recipient under average circumstances.

Time studies should be conducted when activities that are being performed in the functional centre for which one would like to assign a standard unit value. A schedule of unit values can be developed to document standardized workload units reflecting specified activities. A standardized timing protocol has been developed to promote flexibility and adaptability of unit values to a variety of settings and accurately reflect resource requirements. The time study protocol is also intended to provide a consistent approach to performing time studies.

Whenever a time study is performed for new activities, or when published values are significantly different, departments are encouraged to submit the results of the time studies to MIS for evaluation and discussion. The MIS Consultant will forward any provincial changes to CIHI for review and possible inclusion in the maintenance of the MIS Standards.

In the workload measurement system, service recipient activities are typically assigned a unit value. Non-service recipient activities, on the other hand, are usually recorded using actual time methodology. The unit value for an activity is equivalent to the number of minutes of unit-producing personnel time required to complete the activity once. Therefore, to determine the unit value for an activity, time studies must be conducted in a routine setting to measure the amount of time required to perform all

tasks that are part of that activity. It is preferable to time different personnel, at different times to obtain a representative average.

Note: Activities, which are typically performed by clerical or physicians, are excluded from time studies. ***Examples include appointment booking and service recipient registration and order entry.*** *Waiting time and non-service recipient activities such as teaching, in-service education, administrative duties (e.g. scheduling, purchasing), research and development, etc. are also not included in time studies.*

Fields of Observation

When performing time studies, the following fields of observation are typically measured where applicable:

- initial handling/set-up
- service recipient preparation/instructions
- diagnostic/therapeutic activities
- service recipient assistance
- clean up
- clinical documentation.

The accuracy of the unit value for an activity will depend on identifying and measuring all the elements that occur as part of the activity. Further, the assignment of the unit value must reflect the average time it takes the average service provider to perform the activity for the average service recipient under average circumstances.

Steps in Conducting a Time Study

A single individual (surveyor) who is knowledgeable about the activity would conduct the time study as follows:

1. Observe the activity to be studied. Identify and note each step to be timed including initial handling/set-up, service recipient preparation/instructions, diagnostic/therapeutic activities, service recipient assistance, clean up and clinical documentation time prior to performing the actual timings
2. Prepare the necessary forms to record the times for each activity.
3. Measure the time spent by unit-producing personnel to perform the activity using a stopwatch or other suitable timer
4. Time different personnel performing all tasks within the activity on different days of the week and at different times. Include productive time only—exclude waiting time or other unproductive time
5. Time all steps as many times as required (the number of timings will depend on the time variability of each step). If the times vary markedly, perform additional timings. If an activity is rarely performed, it is acceptable to complete and document a timing only once
6. Group activities consistently when conducting timings where activities are being grouped

7. Average the time values by dividing the total time by the number of timings to determine the time to perform that activity once
8. Record the average value in all systems that rely on this information to assign the workload units for an activity
9. File all documentation related to the time study for future reference
10. Re-conduct a time study on a regular basis to maintain the validity of the time value. These should be done when there is a consensus among the staff that the time does not reflect current practice, when the functional centre begins providing service to different types of individuals/organizations, when new workload data collection processes are implemented, or when the workload measurement systems in the MIS Standards are revised.
11. Submit the completed time study to the Provincial MIS Consultant who will forward to CIHI for activities not currently in the schedule of unit values or activities where time requires revision. The time study will be considered for inclusion in the next revision of the discipline specific WMS.

Activities Included in Time Study Where Applicable

Initial Handling/Set Up

Includes reviewing the requisitions for completeness and appropriateness and entering information/demographic data into a computer system.

May include the following activities:

- enter order and information/demographic data into a computer system
- set-up equipment prior to activity
- prepare exam/interview room
- prepare equipment and materials for the service recipient
- prepare room for aseptic techniques

Service Recipient Preparation/Instructions

Includes activities associated with assessing the service recipient's status (e.g. vital signs, history, etc.) prior to the activity, educating the service recipient (e.g. breast self-exam, post-exam care such as diet, activity levels, signs/symptoms to watch for), consulting and reviewing the chart, explaining the activity, ensuring the consent for treatment is complete and preparing and positioning the service recipient.

Activities

- assess the service recipient’s status
- educate service recipient
- consult and review the chart
- explain procedure
- ensure the consent for treatment is complete
- prepare and position the service recipient.

Diagnostic/Therapeutic Activities

Includes the actual activity itself, as well as, monitoring or taking the service recipient's vital signs during and following the procedure and conducting activities related to the care of the service recipient. Includes assisting a physician or other health care professional in the performance of a procedure.

Activities:

- perform assessment (pre and post monitoring)
- perform service recipient care activities
- perform MRSA/VRE/latex activities
- counselling
- discharge planning
- advocacy service recipient specific
- clinical documentation

Service Recipient Assistance

Includes assisting a service recipient with mobility, positioning, and transferring. Includes assisting other health care providers with any preparation related to service recipient assistance. Excludes portering activities unless specific skills are required during the transfer (critical care patient).

Cleanup

Includes clean-up of the work area, decontamination procedures and disassembly of equipment where necessary.

Activities:

- clean-up work area
- perform decontamination procedures
- disassemble equipment

Clinical Documentation

Includes documentation of service recipient and activity-related information.

Validity and Reliability

The validity of a workload measurement system is defined as its ability to measure what it is supposed to measure. Workload measurement systems should be reviewed annually to ensure that:

- the system reflects the activities of the service
- the times reflect current reality when a standard or average time methodology is used
- data collection is consistent by routine reliability audits

The reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring consistently. Inter-rater reliability refers to the extent to which data is reproducible by various staff members. It is important that different staff using the same measurement

tool, measuring the same individual, at the same time, will derive a consistent result. A reliable system provides consistent data.

Factors that may influence the reliability of workload information include:

- characteristics of the tool or system (Is it user friendly or difficult to use?)
- terminology and definitions used
- time required to enter information
- person entering data (best if the person providing the care enters data)
- time of completion (close to time of intervention)
- motivation of the person recording (reduced if information not shared, not relevant, not valued, not used)
- staffing levels (often left undone if understaffed)

Factors to consider when selecting a workload measurement system reliability process:

- when reliability data does not meet standards, the number of checks should be increased until the problem is identified, strategies for improvement implemented and reliability scores have improved
- audits should be random
- when more than one category of service recipient is treated in one functional centre, audits should be completed on each category
- efforts should be made to review the workload recorded by several people

The MIS Standards recommend at least an 85% inter-rater reliability rate. Inter-rater results that fall below the target indicate a need for re-education, redesign of the tool/system or the instructions on how to enter data. The frequency and number of checks should be related to the use of the data and the importance of the resulting decisions.

Workload data must be considered valid and reliable before it can be used for decision- making or for external comparisons. In some provinces, workload is used in the current funding formula as the base for cost allocation between funding groups. Service recipient workload is used inpatient/resident/client hospital specific costing which is consequently used in the development of weights for case mix groupings.

Cardiac Catheterization Laboratory- Data Collection

Cardiac catheterization laboratory services can use functional centres in the 713 framework or 714 framework for reporting. The required statistics for data collection is dependent upon the functional centre that has been chosen to report the activity.

Please refer to the Reference Guide for information that is related to medical imaging service activity and workload statistics.

Please refer to the Nursing Reference Guide for information that is related to nursing workload, service activity and caseload status statistics; and Reference Guide for associated nursing services.

The reporting requirement for surgical visits has been updated to include encounters in the cardiac catheterization laboratory. **Surgical Visits** is defined as the occasions during which a service recipient had a surgical intervention in an operating or procedure room. If an individual returns to the operating or procedure room for further surgery during the same calendar day, this intervention will be counted as another surgical visit.

Note: This is a provincial definition.

Surgical visit is represented by secondary statistical account **4 37 00.**

By Category of Service Recipient

- 4 37 10 Inpatient (CMDB)
- 4 37 22 Client Hospital Surgical Day Care
- 4 37 23 Client Hospital - Other

Special Recording Situations

Multiple Staff Members Providing Care

If two staff members from the same functional centre participate in service recipient activities at the same time, both report workload; however, only one in-house exam is recorded.

Students

When calculating service recipient costs and resource requirements it is important to include all resource requirements. Therefore, all service recipient workload is recorded even if provided by unpaid students instead of staff. The contribution of students to service recipient workload will vary depending on their stage in the learning process. Identification of resource use is one of the goals of the MIS Standards. The MIS Standards suggest service recipient workload, service activity and caseload status statistics generated by students, who are functioning independently, be recorded. The Provincial MIS Committees recommend that senior level students, as identified by each committee for their own discipline, record service recipient and non-service recipient workload, in addition to their worked hours, service activity and caseload status statistics.

Organizations are advised to measure the contribution/cost of students by separately identifying service recipient and non-service recipient workload of students and non-service recipient student time of employees on their workload tool to be tracked internally. If documentation of student supervision time is required for professional organizations this should be captured through other mechanisms.

Volunteers

Volunteers are not paid employees of the organization, are not considered unit-producers, and do not collect and report workload or service activity/caseload status statistics.

Services Provided in Absence of Service Recipient

A person can be counted as part of your caseload in each month if services are provided in the absence of the service recipient (e.g. arranging for equipment and documenting in a client's chart). Although, there is no attendance day the time spent can be recorded as service recipient workload and a new referral or active carryover will be collected when appropriate. This means that if there is no attendance day for the period (month) there can still be a caseload statistic.

Travel Time for Service Recipient Activities

Travel time to get to a client is often necessary in order to provide service recipient care; however, the amount of time that is consumed traveling to a client is not related to the needs of the person but rather to the characteristics of the organization, such as number of sites, physical layout, organizational structure, staff assignments and the geographic area to be covered. Therefore, it is concluded that it is not appropriate to record travel time as service recipient workload.

Workload tools can be used to track staff travel time specifically (either continuously or by sampling) to provide insight into the impact on workload and assist in better decision-making. This is particularly useful in Regional Health Authorities with multiple service sites.

Waiting Time

Waiting time refers to time waiting for clients, other health care professionals or physicians. This is non-productive time and should not be recorded as workload. Although wait time consumes resources there is no output. Some clinicians have included this time as workload as it is perceived to be uncontrollable, but this is not appropriate; instead, strategies should be considered to reduce this non-productive time.

If waiting time appears to be excessive it is recommended that staff record wait time (by sampling preferably) to provide a measure of time wasted. This time should be reported on internal management reports but must not be included in external workload reporting. This can be a valuable piece of information that can facilitate the identification of strategies to reduce wait time. Sometimes, just the measurement and communication of the magnitude and cost of this time will have beneficial effects. In other situations, policy changes may be needed.

Time spent waiting for clients, other health care professionals or physicians is non-productive time and should not be recorded as workload, unless another activity is undertaken to fill that time, e.g. charting.

Educational Activities of Unit-Producing Staff

The dissemination of knowledge by functional centre unit-producing staff through lectures, presentations, observations, or direct participation to individuals other than registered service recipients is included in the non-service recipient workload (under teaching/in-service). Unit-producing time in this activity should not be charged to the education framework unless the time spent by an individual in this activity is greater than 20% of that individual's time. In that case, the individual is considered multi-functional and earned hours are divided between the two functional centres.

Research Activities of Unit-Producing Staff

All activities performed by functional centre unit-producing staff who are involved in formally designed, systematic approved clinical investigations directed to advancing knowledge in the field of health care using recognized methodologies and procedures, are recorded as non-service recipient workload. This includes reviewing and writing proposals, completing and analyzing data and writing reports. Unit-producing time in this activity should not be charged to the research framework unless the time spent by an individual in this activity is greater than 20% of that individual's time. In that case the individual is considered multi-functional and earned hours are divided between the two functional centres.

Reporting Options for Service Recipient Workload

Service recipient activity workload can be recorded on a service recipient-specific basis or provider specific basis. Service recipient-specific recording requires the provider to record the amount of time spent in service recipient activities (assessment, therapeutic intervention, or consultation/collaboration) for each person during the reporting period. This can be more time consuming than provider-specific recording depending on the type of recording methodology and technology involved and is required for

case costing. Provider-specific recording requires the provider to record their total time for the period spent in service recipient activities. In this case, one cannot identify the amount of time devoted to a specific individual. Regardless of the level of recording detail chosen, the total workload statistics will be the same.

Additional Points Related to Non-Service Recipient Workload

Non-service recipient workload is usually only recorded during worked hours. In addition, non-service recipient activities can only be recorded if required by the organization. If staff members are required to attend a meeting, either facility or community, outside work hours or the staff member is expected to spend a percentage of time in research or education and this expectation is defined in the job description, then non-service recipient workload can be recorded. Many non-service recipient activities may not be required by the organization and therefore workload cannot be recorded for this time. Examples include attendance at professional meetings, participation in academic and research activities, participation in community activities, etc.

Non-service recipient workload is important as it demonstrates the extent of activities that are not related to specific patient/resident/client hospital volumes but are still an integral part of the professional's contribution to the health system. These activities can be for the benefit of the community, staff, students, or the organization. If there are specific activities that should be highlighted, internal reports should be created to provide further insight into the activities that consume clinician's time. This may include:

- staff travel related to the provision of patient care
- activities which are not under the control of the manager such as
  - legislated activities - Occupational Health and Safety Committee involvement
  - facility required activities - reengineering, restructuring, accreditation
- activities that support the organization's employees such as:
  - critical incident stress debriefing
  - counselling
  - spiritual care
- activities that support the community such as:
  - development of infrastructures that will support service recipients after discharge
  - participation in community agency boards
  - educational sessions for service agencies

Technology Requirements

Information systems provide essential infrastructure for the workload measurement process. The nature of workload data is such that technology can greatly assist in its collection and analysis. Information systems are tools that support the use of workload information by providing ready access to data and presenting this information in statistical reports. Patient/resident/client hospital management systems have themselves evolved to the point where workload measurement can occur as a by-product of documentation. There are many different technology options that can optimize this "point of care" documentation including handheld, pen based and barcode devices. The MIS Standards do not specify a particular software package or technology option to be employed in workload measurement.

Currently in Newfoundland and Labrador there are several means by which organizations collect, analyze and report workload data. These include: a completely manual process; manual collection with data entered or scanned into a central computer system; workload collected as a by-product of documentation in an automated system; and handheld entry devices which download into a computer system.

A variety of computerized options are currently used to collect and/or report workload data including direct entry into Meditech systems, use of customized software and use of spreadsheet programs such as Excel. Clinicians working in Health and Community Services will use the Client and Referral Management System (CRMS) to collect and report workload data.

Turning Data into Information

Information Pathways

Financial Information is maintained in the Meditech systems of the Regional Health Authorities as well as the Client Pay Module of the Client and Referral Management System (CRMS).

Statistical information in Newfoundland and Labrador is collected by frontline staff in several ways:

- electronically (by spread sheet or computer program)
- as a by-product of charting (collected in the background in your computer system)
- manually

Regardless of the method of data collection, the information must be entered into the statistical general ledger of the regional Meditech system for regional use and external reporting.

Financial and statistical information is submitted electronically by the Regional Health Authorities to the Provincial MIS Database at the Department of Health and Community Services. The information is used for budget monitoring, service planning, resource allocation, etc.

The Department of Health and Community Services submits the data electronically to the Canadian MIS Database at CIHI. This information is used to determine Canada's health expenditures, meet international reporting requirements, calculate national economic indicators such as the gross domestic product and conduct health and health system evaluation and analyses. Figure 20 below illustrates the flow of financial and statistical information from the points of data collection within the RHA's to the CIHI.

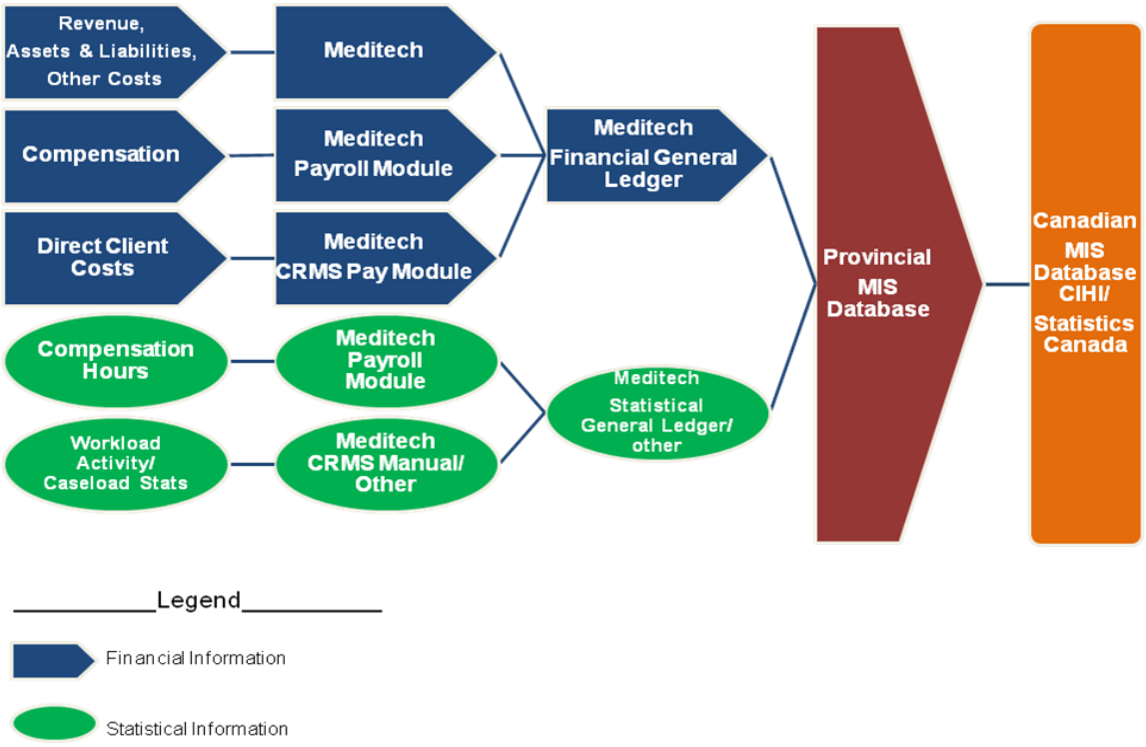

Figure 20

Performance Indicators

Data are statistics that, on their own, may not have a great deal of value or meaning. To be useful and relevant, good quality data must be turned into meaningful information, which is accurate, timely, comprehensive, useable, and relevant. When workload data is linked to financial or other statistical data to create performance indicators, the data can then be used for decision-making.

Indicators are ratios or percentages calculated from financial and/or other statistics that quantify a relationship between the data elements. Indicators measure performance and provide information that can be used to facilitate decisions or compare performance, such as, cost per workload unit (see Figure 21). They turn data into useful information.

The MIS Standards contain numerous indicators within the five categories of financial, staffing, productivity, utilization, and workload. They can be used to analyze and interpret workload data, service activity and caseload status statistics and can assist staff and managers in analyzing and evaluating their services. Indicators are valuable decision-support tools for service planning, impact analysis and effective management.

Implementation of a workload measurement system and reporting of workload and other statistical data is not the ultimate goal; however, the primary value in workload measurement is the use of the information to make better management decisions. This is essential to gain value from the time, effort and dollars consumed in the workload collection process. Appropriate use of the information and

feedback to staff will enhance understanding and support for accurate information, resulting in better data quality.

Selected examples of some key indicators, their calculations and interpretation have been included in this section:

- cost per workload unit
- cost per workload unit by service recipient type
- workload units per activity
- UPP worked productivity
- UPP total productivity

Cost per Workload Unit

This indicator describes the cost to provide one minute of service or one workload unit.

$$\text{Cost per Workload Unit} = \frac{\text{Defined Cost}}{\text{Workload Units}}$$

Figure 21

The costs in this formula can be defined as:

- **full cost** which includes both direct and indirect functional centre costs
- **direct cost** which includes only direct functional centre costs
- **a specific component** of direct cost such as unit-producing compensation, supplies or sundry

Workload can be defined as:

- **total** (service recipient and non-service recipient)
- **service recipient**
- **non-service recipient**

The cost and workload values selected for measurement will be dependent on the intended use of the data. The components of this indicator must be known when comparing costs across organizations. One of the most used financial indicators is direct cost per service recipient workload unit. Total cost per service recipient workload unit is used to support case costing analysis. Managers will find that compensation cost per workload unit is valuable to support human resource decisions as well.

Factors that may affect this indicator include:

- staff mix
- workload measurement system in use
- overtime
- use of on-call staff

- sick time
- education and orientation costs
- benefit compensation packages
- compensation levels

Cost per workload unit can be used, in conjunction with workload units per activity, to determine costs of new programs and services and to determine the financial resources to be added, transferred or removed from a functional centre due to changes in population served, program or service (i.e. impact analysis).

Cost per Workload Unit by Service Recipient Type

Workload units by service recipient type is used in calculating the costs of specific patient/resident/client hospital type services for funding purposes and for calculating the impact of changes in service recipient characteristics.

$$\text{Cost per Workload Unit by Service Recipient Type} = \frac{\text{Total Cost for Functional Centre}}{\text{Total Service Recipient Workload Units}} \times \text{Workload Units per Type}$$

Figure 22

Workload Units per Activity

This indicator describes how workload is related to a specific activity, such as an in-house exam, admission or visit.

$$\text{Workload Units per Activity} = \frac{\text{Workload Units for the Defined Activity}}{\text{Volume of Activity}}$$

Figure 23

The workload units used could be:

- **total** (service recipient and non-service recipient)
- **service recipient**
- **non-service recipient**

The workload unit(s) used will depend on the intended use of the data. When calculating staffing for changes in-patient/resident/client hospital volumes, only the service recipient workload should be considered as non-service recipient workload is not volume dependent and will remain despite changed service volumes. This would also apply when considering changes in service recipient type (i.e. chronic rather than acute, or inpatient rather than client).

Factors that can affect this indicator include:

- availability of support staff on the unit
- availability of other health professionals
- physician ordering practices
- care delivery models
- nursing care models
- organizational policies
- facility layout
- patient/resident/client hospital acuity and demographics

Productivity

Productivity is the relationship between inputs and outputs. In this context inputs are worked hours and outputs are workload units. The goals or targets set for productivity indicators depend on the circumstances and the strategic goals of the organization.

The options for increasing productivity include:

- maintaining the worked hours but increasing the workload units
- decreasing the worked hours but maintaining the workload units
- decreasing both the worked hours and workload units but decreasing the worked hours more than the workload units
- increasing both the worked hours and workload units but increasing the workload units more than the worked hours
- decreasing the worked hours and increasing the workload units

The MIS framework does not include coffee breaks in workload measurement. Coffee breaks alone can account for 7-8% of worked hours; in addition, at least 5% is usually lost to personal or delay time. Therefore, the maximum productivity which can be expected is approximately 87%. Realistically, 80-85% total productivity is a reasonable level of accountability of how worked hours were spent. If productivity is higher than this it could be related to:

- staff working through coffee and/or lunch
- presence of students
- staff working unpaid hours to provide service recipient care
- inaccurate reporting of either worked hours or workload

Two of the most calculated productivity indicators are:

- unit-producing personnel worked productivity (%)
- unit-producing personnel total productivity (%)

UPP Worked Productivity (%)

Productivity is expressed as a percentage and therefore will be multiplied by 100. This indicator calculates the percentage of all unit-producing personnel worked and purchased hours spent in the provision of service.

$$\text{UPP Worked Productivity \%} = \frac{(\text{Service Recipient Workload Units}) \div 60}{\text{UPP Worked + Purchased Hours}} \times 100$$

Figure 24

UPP Total Productivity (%)

This indicator calculates the percentage of all unit-producing personnel worked and purchased hours spent in the provision of service recipient and non-service recipient activities.

$$\text{UPP Total Productivity \%} = \frac{[(\text{Service Recipient + Non-Service Recipient Workload Units}) \div 60]}{(\text{UPP + Purchased Hours})} \times 100$$

Figure 25

Performance Indicators Related to Resource Consumption

The following performance indicators are considered the most useful for organizational comparisons and to also provide a comprehensive picture of a department/program. Individual organizations may elect to produce other indicators that are relevant to its needs.

The formulas for these indicators are included in the MIS Standards:

- unit-producing worked productivity (%)
- unit-producing total productivity (%)
- percentage of distribution of workload, by category of service recipient
- percentage of distribution of workload, by workload categories
- direct cost per workload unit
- workload units per in-house exam
- service recipient workload units per UPP full-time equivalent
- number of full-time equivalents per occupational group/class

To effectively allocate and use resources policy makers, health administrators and professionals must understand resource consumption and costs of caring for groups of service recipients with varying needs, in different settings. Workload measurement data, in conjunction with other information, can provide valuable information to support decisions. At the department level these decisions include:

- identification of staff hours required to meet workload requirements
- construction of a staffing schedule that reduces resource requirements
- equitable staffing assignments
- appropriate skill mix
- optimal education level for the type of services provided
- best process for care delivery

How can Workload Information be used for Costing?

The allocation of functional centre costs is based on workload data that is the most accurate statistic to use. Workload values affect not only the allocation of functional centre direct costs to types of service recipients but also the distribution of indirect costs (administrative and support costs). This occurs because indirect costs are distributed to types of service recipients based on the direct costs.

How can Organizations Apply Performance Indicators?

Reports generated using the financial and statistical data collected provide functional centre managers, senior health care executives and the board of trustees with information critical for decision-making. A view of specific information across all the organizations in a region (e.g. drugs, unit-producing compensation) can be important for a senior manager. The examples listed below will demonstrate some of the different ways financial and statistical data can be aggregated across health service delivery settings (e.g. acute care hospital, community health care centre, home care):

- budgeting/impact analysis
- staffing/scheduling
- human resource decisions
- cost minimization
- quality initiatives

Budgeting/Impact Analysis

Workload information can be used to determine zero based or flexible budgets for existing services or for planning the budget of a new or altered service.

1. Predicted Volume X Service Recipient Workload per Activity = Predicted Service Recipient Workload

2. Predicted Service Recipient Workload X Cost per Service Recipient Workload Unit = Predicted Total Cost

3. Benefit Hours + Salaries + Benefit Contribution Dollars must then be added to develop the total budget.

Figure 26

Increase/Decrease/Transfer of Service Recipients or Dollars within an Organization/ Between Organizations.

Workload information can prove helpful when trying to determine the staffing impact of increasing or decreasing a particular activity or when trying to determine the appropriate transfer of funds/staff that are linked to the activity.

Example: change of an acute inpatient service to a rehab service

To determine impact on staffing:

1. Number of Rehab Referrals X Service Recipient Workload Units per New Referral = Expected Rehab Service Recipient Workload Units

2. Expected Rehab Service Recipient Workload / Service Recipient Workload Units per FTE = # of FTEs required

3. To determine budget impact:

Service Recipient Workload X Cost per Service Recipient Workload Unit = Total Cost Estimated

4. Then a comparison needs to be made between the costs of acute vs. rehab services to determine the impact of the change on staffing needs.

Figure 27

Staffing/Scheduling

Workload can be used to justify current staffing and identify staff increases or reductions based on workload requirements. Patient census alone cannot identify needs since not all service recipients are equal and do not require the same health services.

An increase in productivity can reduce costs by eliminating non-productive time. This can be achieved through a better matching of workload requirements and actual staffing and by monitoring trends of resource needs by day of week and time of year. Staffing schedules can sometimes be altered to provide a better match.

Non-productive time can only be identified if service recipient and non-service recipient workload is accurately defined and measured. A system that presumes that all time not related to service recipient activities is automatically non-service recipient time or a system that assumes non-service recipient activity is directly related to service recipient time will not provide the required information. Non-service recipient activities need to be specifically defined with associated time values.

Workload information can also be used to determine staff assignments. Rather than determining staff assignments based on the number of service recipients, the assignments can be determined based on the workload generated by each service recipient. This can lead to more equitable assignments, higher staff morale and better care. This will lead to more accurate workload collection. Staff travel time also needs to be considered when assigning caseloads to reduce non-service recipient workload. Included in this decision process one must also consider the knowledge and skill required to provide care for specific types of patients/residents/client hospital.

Human Resource Decisions

A workload measurement system, that identifies types of specific activities, can also be useful for skill mix decisions. The tasks that are frequently selected can be reviewed to determine the level of expertise that is required to complete the tasks and this information can be helpful in determining the appropriate ratio of staffing. **Caution should be exercised when using this process as the level of expertise required to provide service recipient care is not only the sum of specific tasks**. It should also consider the analysis required to determine appropriate strategies to respond to the data generated by these tasks. The workload resources required could be the same in two units but the level of expertise necessary to provide care may be different depending on the complexity of care.

To improve productivity, if the appropriate matching of workload and actual hours cannot be achieved within the current staffing complement, the manager may need to alter the full-time/part-time ratio to allow the flexibility required to provide the desired match.

Given current fiscal restraints and recruitment/retention issues in many health disciplines, there is a growing interest in capturing more human resource related data through the MIS Standards.

Cost Minimization

A workload measurement system, which examines specific activities, can be used to identify non-value-added activities or to identify improved processes or timing for providing specific tasks. If activities are not vital to clinical outcomes or satisfaction, they may be considered for elimination. The identification of these activities usually occurs during the implementation and validation/revalidation of standard time tools.

Activities can be linked to care plans or critical pathways to assist in quantifying and selecting alternate modes of care. Physician-driven activities can also be quantified, and this can provide valuable information when discussing critical paths with the medical staff.

A workload measurement system can identify specific tasks performed by staff that could be performed by other staff, thus reducing costs. This could involve the work of other health care professionals or support staff. However, when these tasks do not consume significant time it may be more cost effective for staff to continue to perform the tasks.

Example: If there are sufficient clerical or portering activities, it may warrant the transfer of these tasks to non-professional staff.

Quality Initiatives

Workload data can identify processes that could be improved. These processes may be controlled by the functional centre manager or by another department. If tasks are transferred to another department the workload measurement systems will identify the staffing and cost implications for both departments.

Performance Indicators for Electrodiagnostic, Non-invasive Cardiology and Vascular Laboratory

Financial Indicators

Direct Cost per In-House Exam

Direct cost per in-house exam is the average direct cost per in-house exam. It is calculated by dividing the functional centre's direct operating expenses by the total in-house exams generated by the functional centre in each period. (Provincial Electrodiagnostic, Non-invasive Cardiology and Vascular Laboratory Indicator Reports includes in direct operating expenses all expenses related to compensation, supplies, and sundry; other expenses related to equipment and renovation costs have been removed from this calculation due to differences identified in reporting the information.)

$$\frac{\text{Direct Operating Expense}}{\text{Total In-House Exams}}$$

Figure 28

Direct Cost per Service Recipient Workload Unit

Direct cost per service recipient workload unit is the average direct cost per service recipient workload unit. It is calculated by dividing the functional centre's direct operating expenses by the total service recipient workload units generated by the functional centre in each period.

$$\frac{\text{Direct Operating Expense}}{\text{Total Service Recipient Workload Units}}$$

Figure 29

Total Compensation Expense to Direct Operating Expense (%)

Total compensation to the direct operating expense is the proportion of the direct operating expense of a functional centre attributable to the total compensation expense. It is calculated by dividing the total compensation expense for all personnel by the direct operating expense for that functional centre in each period.

$$\frac{\text{Total Compensation Expense for All Personnel}}{\text{Direct Operating Expense}} \times 100$$

Figure 30

Total Supplies Expense to Direct Operating Expense (%)

Supplies expense to the direct operating expense is the proportion of the direct operating expense of a functional centre attributable to the supply's expenses. It is calculated by dividing the supplies expense by the direct operating expense for that functional centre in each period. (Provincial Electrodiagnostic, Non-invasive Cardiology and Vascular Laboratory Indicator Reports includes in direct operating expenses all expenses related to compensation, supplies, and sundry; other expenses related to equipment and renovation costs have been removed from this calculation due to differences identified in reporting the information.)

$$\frac{\text{Total Supplies Expense}}{\text{Direct Operating Expense}} \times 100$$

Figure 31

Staffing Indicators

Number of Full-Time Equivalents (FTE) by Broad Occupational Group

Number of FTE by broad occupational group is the average number of full-time equivalents for each broad occupational group (MOS or UPP). It is calculated by dividing the earned hours for all employees (full-time and part-time) in a specific broad occupational group by the normal earned hours for a full-time equivalent in that specific group in each period.

$$\frac{\text{Total Earned Hours for all Staff in a Broad Occupational Group}}{\text{Normal Earned Hours for one FTE in a Broad Occupational Group}}$$

Figure 32

The number of UPP FTEs can be further analyzed by occupational class by modifying this formula.

Worked Hours to Earned Hours (%)

Worked hours to earned hours is the proportion of earned hours that is attributable to the worked hour's component. It is calculated by dividing the total worked hours by the total earned hours in each period. This indicator may be calculated for a given functional centre, broad occupational group or occupational class.

$$\frac{\text{Worked Hours}}{\text{Earned Hours}} \times 100$$

Figure 33

A similar calculation can be used to analyze the types of worked hours (e.g. determine the proportion of Worked Hours that were regular hours vs. overtime hours).

Benefit Hours to Earned Hours (%)

Benefit hours to earned hours is the proportion of earned hours that is attributable to the benefit hour's component. Benefit hours are periods of paid absence such as sick leave, vacation, education leave, etc. It is calculated by dividing the total benefit hours by the total earned hours in each period. This indicator may be calculated for a given functional centre, broad occupational group or occupational class.

$$\frac{\text{Benefit Hours}}{\text{Earned Hours}} \times 100$$

Figure 34

A similar calculation can be used to analyze the types of benefit hours (e.g. determine the proportion of benefit hours that were related to sick leave, education leave).

Productivity Indicators

Worked and total productivity are commonly used indicators; the ratios of worked and total productivity shows the amount of staff time spent in service recipient activities versus the total time spent carrying out the mandate of the service. While worked productivity is an important indicator on its own it should not be used exclusively as it does not consider time spent in non-service recipient activity which can be significant in some functional centres. Both indicators can vary depending on the type and location of the service, as well as the support available to UPP staff and should be reviewed keeping these factors in mind.

Worked Productivity (%)

Worked productivity (%) is the percentage of all unit-producing personnel worked hours spent in the delivery of services to or on behalf of specific service recipients. It is calculated by dividing the service recipient workload units (converted to hours) by the worked hours plus purchased hours of the unit-producing personnel in each period and multiplying by 100. This has traditionally been the most widely used productivity indicator.

$$\frac{\text{Service Recipient Workload Units} \div 60}{\text{Unit-Producing Personnel Worked + Purchased Hours}} \times 100$$

Figure 35

Total Productivity (%)

Total productivity is the percentage of all unit-producing personnel worked spent in the provision of service recipient activities and non-service recipient activities. It is calculated by dividing the service recipient and non-service recipient workload units (converted to hours) by the worked hours plus purchased hours of the unit-producing personnel in each period and multiplying by 100.

$$\frac{\text{Service Recipient + Non-Service Recipient Workload Units} \div 60}{\text{Unit-Producing Personnel Worked + Purchased Hours}} \times 100$$

Figure 36

Service Recipient Workload Units per Full-Time Equivalent (FTE)

Service recipient workload units per FTE is the average number of service recipient workload units generated by each unit-producing personnel full-time equivalent. It is calculated by dividing the service recipient workload units by the number of unit-producing personnel full-time equivalents (see previous staffing indicator for the calculation of the number of unit-producing personnel FTEs). This indicator is commonly used to establish realistic caseload guidelines, monitor staff productivity and workload, and determine the impact of changes in service demands.

$$\frac{\text{Service Recipient Workload Units}}{\text{Number of Unit-Producing Personnel FTEs}}$$

Figure 37

Total Workload Units per Full-Time Equivalent (FTE)

Total workload units per FTE is the average number of total workload units generated by each unit-producing personnel full-time equivalent. It is calculated by dividing the total workload units by the number of unit-producing personnel full-time equivalents (see previous staffing indicator for the calculation of the number of unit-producing personnel FTEs). This indicator is commonly used to establish realistic caseload guidelines, monitor staff productivity and workload, and determine the impact of changes in service demands.

$$\frac{\text{Service Recipient + Non-Service Recipient Workload Units}}{\text{Number of Unit-Producing Personnel FTEs}}$$

Figure 38

Utilization Indicators

Service Recipient Workload Units per In-House Exams

Service recipient workload units per in-house exam is the average length of unit-producing personnel time it takes to complete one exam. It is calculated by dividing the number of service recipient workload units by the number of in-house exams in each period. This indicator may be further broken down by category of service recipient (i.e. inpatient, client hospital). In those cases, the numerator and denominator should only include the workload units and the exams associated with the category of service recipient.

$$\frac{\text{Service Recipient Workload Units}}{\text{Total In-House Exams}}$$

Figure 39

Workload Indicators

Distribution of In-House Exams by Category of Service Recipient (%)

Percentage of distribution of in-house exams by category of service recipient is the percentage of in-house exams that originate from the various categories of service recipients. It is calculated by dividing the number of in-house exams for a specified category of service recipient (e.g. inpatient, resident, and client hospital) by the total number of laboratory interventions for a given period and multiplying by 100.

$$\frac{\text{In-House Exams (specified by category of Service Recipient)}}{\text{In-House Exams for all categories of Service Recipients}} \times 100$$

Figure 40

Distribution of Service Recipient Workload Units by Category of Service Recipient (%)

Distribution of service recipient workload units by category of service recipient is the percentage of unit-producing personnel time that is attributable to the various categories of service recipients. It is calculated by dividing the number of service recipient workload units for a specified category of service recipient (e.g. inpatient, resident, client hospital) by the total number of service recipient workload units for a given period and multiplying by 100.

$$\frac{\text{Service Recipient Workload Units (Specified by Category of Service Recipient)}}{\text{Service Recipient Workload Units for all Categories of Service Recipients}} \times 100$$

Figure 41

Distribution of Workload Units by Workload Category (%)

Distribution of workload unit by workload category is the percentage of unit-producing personnel time spent in the two workload categories (service recipient and non-service recipient activities). It is calculated by dividing the number of workload units of one of the specified categories by the total number of workload units (service recipient and non-service recipient activities) for a given period and multiplying by 100.

$$\frac{\text{Specified Category (e.g., Service Recipient Activities) Workload Units}}{\text{Service Recipient and Non-Service Recipient Workload Units}} \times 100$$

Figure 42

Interpreting Workload Indicators Results

Why would your workload measurement values change when the type(s) of service recipients and volume remain the same? Some possible reasons that could affect service recipient and non-service recipient values include:

- service recipient activities:
  - physician ordering practices may have changed
  - advances in technology
  - staff may be over or under recording due to their perceived uses of the system
  - there may be new staff who do not understand how to use the system
  - clinical practices may have changed

- non-service recipient activities:
  - new organizational expectations for unit-producing staff involvement in committees
  - development of a new service/program
  - introduction of a new facility computer system requiring in-service education
  - change in student volumes
  - availability of support staff
  - participation in a new research project
  - new expectation for community or staff support

Why would your workload data differ from that of another organization when the type(s) of service recipients and volume are the same? Possible reasons include:

- differences in physician ordering practices
- staff may be doing work in one hospital that is performed by other health care providers in another setting
- differences in technological support
- differences in the physical environment (e.g. distance between service recipients, availability of elevators)
- differences in support systems such as proximity of equipment or supplies

- differences in service recipient needs despite having the same diagnosis (e.g. socio-economic needs, distance to the facility)
- differences in provider mix (e.g. professional to assistant ratio and levels of support staff)
- differences in clinical practice

The data collected through the WMS and the associated activity statistics should be compiled and reported monthly to the administrator of the discipline specific service. Individual site reports are of value to site managers, as well as to the director of each service. In combination with a monthly financial report, managers can calculate key performance indicators with which they can monitor and measure performance. Ideally, such indicators can be automatically generated from the Meditech system using an NPR report. Directors of are encouraged to work closely with information systems staff and finance department staff to develop automatic reporting for all stakeholders containing information at an appropriate level of detail for the user and in a timely fashion.

Many managers use MIS performance indicators as components of balanced scorecards, or other quality reporting required by their RHA's. Such data is vital for benchmarking activities, a valuable process for discovering best practices among peer organizations.

The basic operational management information provided by the MIS data is the foundation for day-to-day management functions as well as strategic decision making and impact analysis.

Sample Performance Indicator Report

Sample Performance Indicator Report					
	Fiscal Year				
	Fiscal Period				
	Facility A	Facility B	Facility C	Facility D	Facility E
	Functional Centre	Functional Centre	Functional Centre	Functional Centre	Functional Centre
Performance Indicators					
Financial					
Direct Cost per Service Recipient Workload Unit	$1.69	$1.42	$1.17	$1.32	$1.60
Total Compensation to Total Expenditures	99.1%	97.5%	98.2%	96.7%	97.6%
Staffing					
UPP Worked to Earned Hours	52.6%	81.0%	80.5%	82.5%	83.7%
UPP Benefit to Earned Hours	17.4%	19.0%	19.5%	17.5%	16.3%
Productivity					
UPP Worked Productivity (%)	48.0%	54.3%	61.7%	61.1%	54.6%
Total UPP Productivity (%)	67.4%	78.3%	81.6%	88.5%	78.0%
Utilization					
SR Workload Units per In-house Exam					
Inpatient	50.53	70.72	50.35	55.32	59.28
Client Hospital	54.26	73.95	45.00	55.85	93.38
Client Home Care	21.14	20.49	0.00	0.00	65.23
Client Community	30.20	0.00	41.55	0.00	33.00
Resident	45.31	48.64	18.66	60.62	0.00
Facility/Organization/Citizen Partnership	0.00	100.71	0.00	30.00	0.00
SR not Uniquely Identified	15.15	34.11	28.88	33.29	78.15
Workload					
% Distribution of Service Recipient Workload Units					
Inpatient	46.8%	44.1%	46.8%	38.6%	20.9%
Client Hospital	39.0%	44.0%	34.5%	42.4%	76.9%
Client Home Care	1.0%	2.3%	0.0%	0.0%	0.5%
Client Community	1.5%	0.0%	3.4%	0.0%	0.3%
Resident	11.3%	8.2%	15.2%	14.3%	0.0%
Facility/Organization/Citizen Partnership	0.0%	0.4%	0.0%	0.0%	0.0%
SR not Uniquely Identified	0.4%	1.0%	0.1%	4.7%	1.4%
% Distribution of Workload Units					
% Service Recipient Workload Units	71.3%	69.4%	75.6%	69.1%	70.0%
% Non-Service Recipient Workload Units	28.7%	30.6%	24.4%	30.9%	30.0%

Figure 43

Data does not represent any one facility or region.

Important Points About Data Collection

Secondary statistical information, such as, workload, service activity and caseload status statistics, is collected by unit-producing personnel (UPP) only.

Care should be taken to ensure that only the worked hours of staff (UPP) are matched to the workload that is generated, as these two pieces of data will be used to produce productivity information. Failure to accurately match these data elements will skew productivity indicators.

When management staff members provide direct care (unit-producing) for a portion of their time, their workload and earned hours for that time should be included in the functional centre totals.

Workload measurement collection expectations and targets should be incorporated into:

- staff orientation programs
- job descriptions for all staff
- performance evaluations and reviews
- the strategic goals of the organization

Maintenance of workload measurement systems requires:

- involvement of all staff
- formal annual review by staff or whenever there are changes in service recipient types or care processes
- on-going in-service education
- regular reliability testing

Manager responsibilities:

- provide leadership for implementation
- ensure adequate reference material is available
- understand all components of the system
- regularly monitor the results to ensure data quality
- investigate sources of inconsistent data
- use the information to support decision-making
- provide feedback to all staff recording workload (e.g. individual reports, discussion of analysis)

Staff responsibilities:

- record data accurately to quantify services provided
- record data in a timely manner
- accurately measure the resource requirements of their patients
- understand the workload measurement system, both recording and interpretation of results
- share knowledge with new staff, such as accurate use of reference material

Resources

National Resource Materials

The Standards for Management Information Systems in Canadian Health Services Organizations (MIS Standards) are published on CD-ROM bi-annually by CIHI. Upon release, a copy is sent to the Department of Health and Community Services, NLCHI, and the Chief Financial Officers of each Regional Health Authority. Further details regarding all topics enclosed in this reference guide are contained in the MIS Standards. If you require access to the national MIS Standards, please contact the appropriate regional financial department.

Provincial Resource Materials

Resource documents and information available from the MIS staff of the Centre include:

- Regional Health Authorities Reporting Requirements User Guide
- discipline specific reference guides
- discipline specific indicator reports (through information request)

Education

CIHI provides a series of education sessions including eLearning and WebEx sessions on an on-going basis and in-person sessions a minimum of once per year. The topics for these sessions vary and a current schedule may be obtained either through CIHI's website or by contacting the MIS Staff at the Centre. Educational workshops are also available through the Centre and can be customized for specific needs and offered on a site specific or regional basis.

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