



CANADIAN NEONATAL NETWORK™

POLICIES AND PROCEDURES

TABLE OF CONTENTS

Part 1 - CNN Introduction, Mission Statement and Objectives.....	1
Part 2 - Structure	2
Part 3 - CNN Coordinating Centre	3
Part 4 - Membership	5
Part 5 - Research Projects.....	7
Part 6 - Publications	7
Part 7 – Changes to Policies and Procedures	9
Appendix A: Participating Hospitals	
Appendix B: Components of Annual Report	
Appendix C: Computer Requirements for the CNN/EPIC/INC Database Systems	

Part 1 – CNN Introduction, Mission Statement and Objectives

Introduction - The Canadian Neonatal Network™ (CNN) is a group of multi-disciplinary researchers who collaborate on research issues related to neonatal care. CNN was founded in 1995 by Dr Shoo Lee and includes members from 28 hospitals (see Appendix A) representing 17 universities across Canada. The Network maintains a standardized neonatal intensive care unit (NICU) database and provides a unique opportunity for researchers to participate in collaborative projects on a national and an international scale. Health care professionals, health services researchers and health administrators participate actively in clinical and epidemiological outcomes, health services, health policy and informatics research aimed at improving efficacy and efficiency of neonatal care. Research results are published in Network reports and in peer-reviewed journals.

As a network, CNN is unique because of the multi-disciplinary nature of the collaborations between researchers and professionals working to improve care and quality of care for infants and their families. Each site investigator must operate under a sponsoring institution (e.g. University medical centre) and must adhere to the guidelines and rules of that institution during their collaborations with other CNN site investigators.

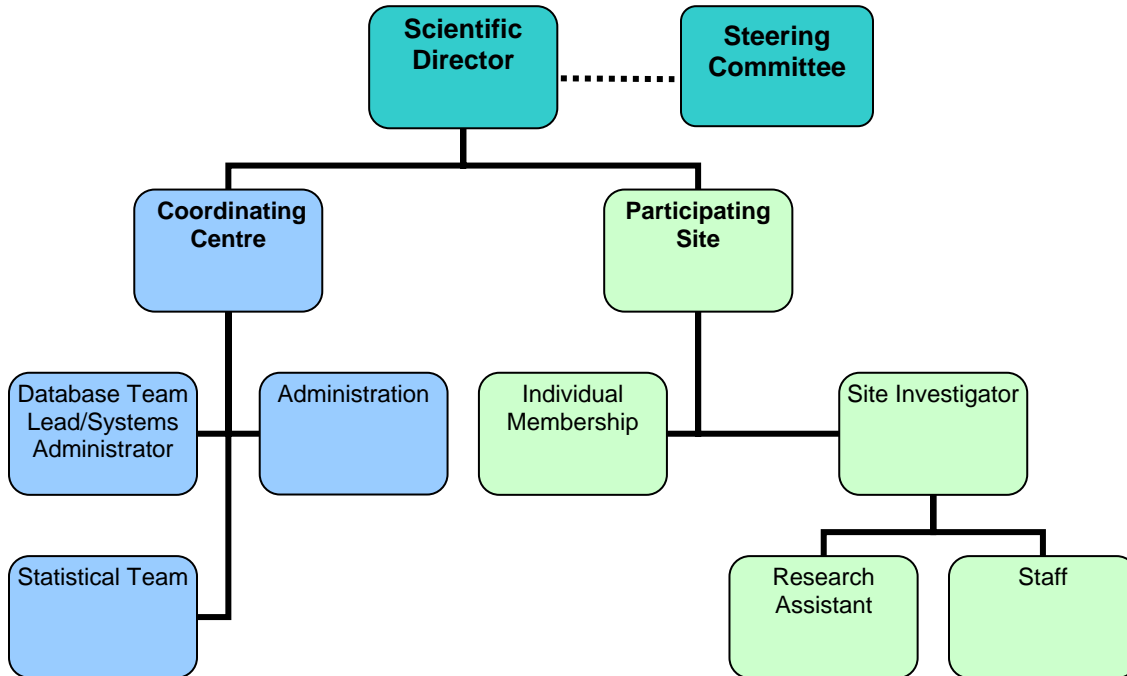
Mission Statement - To be a network of Canadian researchers who conduct leading multi-disciplinary, collaborative research dedicated to the improvement of neonatal-perinatal health and health care internationally.

Objectives - The objectives of CNN are to:

- Establish an international network of multi-disciplinary Canadian researchers interested in neonatal-perinatal research.
- Establish and maintain a truly national neonatal-perinatal database and to provide the infrastructure to facilitate collaborative research.
- Study longitudinal outcomes and variations in medical care incorporating cost-effectiveness of such interventions. This is important because NICU care is one of the largest components of child health care expenditures and exhibits large variations in mortality, morbidity and costs.
- Develop innovative research methods that can result in improvement of health and quality of health care.

Part 2 – Structure

Organizational Structure – The organizational structure of CNN is set forth below.



Steering Committee - The Steering Committee is responsible for:

- setting CNN policies designed to permit CNN to fulfill its Mission Statement and to achieve its objectives
- monitoring on-going operations of CNN and the extent to which such on-going operations fulfill the Mission Statement and achieve the objectives of CNN
- monitoring receipt and expenditure of funds of CNN
- approving services to be provided by, and research to be conducted through, CNN
- performing such other duties as provided in these Policies And Procedures.

There are seven Committee Members on the Steering Committee. Six of the Committee Members are elected voting representatives. The CNN Scientific Director is an ex officio voting Committee Member and Chair of the CNN Steering Committee. The elected Committee Members hold office for a term of three (3) years and are eligible for re-election for one successive term. The terms of office of the elected Committee Members are staggered so that two positions are open for election on an annual basis.

Individual Members and Site Representatives of Institutional Members are eligible for election as Committee Members. Nominations for the elected Committee Member positions and the process for electing Committee Members from those nominated will

take place in accordance with a process established by agreement between the CNN Scientific Director and the Steering Committee. Only one of the Site Investigator of an Institutional Member and any Individual Member associated with that Institutional Member may be a nominee for Committee Member in any year.

The Steering Committee may establish such rules of procedure relating to the conduct of its business and the calling and holding of meetings as it deems appropriate, provided that all decisions or determinations of the Steering Committee will be made by majority vote of the members entitled to vote on such decision or determination.

CNN Scientific Director - The CNN Scientific Director coordinates the activities of CNN, oversees functions of the CNN Coordinating Centre and supervises maintenance of the Hosted Databases.

The CNN Scientific Director is appointed by the institution which hosts the CNN Coordinating Centre and the Hosted Databases.

Projects Coordinator - The Projects Coordinator is appointed by, and works under the direct supervision of, the Director. The Project Coordinator provides administrative support to CNN and in doing so:

- is responsible for communications between CNN and the Members
- is responsible for monitoring operations at the CNN Coordinating Centre
- is responsible for maintaining the CNN website and the Hosted Databases
- is the central individual at the CNN Coordinating Centre for all data collection and procedural inquiries
- interfaces with the Research Assistants and Site Investigators informed and
- is responsible for ensuring consistent and accurate data collection at all Institution Member sites

Database Manager and Data Analyst - The Database Manager receives, processes, checks and archives the data sent from each Institutional Member Site. The Data Analyst is responsible for analyzing data at the CNN Coordinating Centre.

Part 3 - CNN Coordinating Centre

Functions of the Centre - The main responsibility of the CNN Coordinating Centre is to provide administrative support for services provided by, and research to be undertaken through, CNN. Services provided by CNN include:

- data cleaning, analysis and archiving;
- technical database troubleshooting and support via phone and/or email;

- manuscript preparation assistance;
- variable definitions and general data inquiries from Site Investigators or Research Assistants via phone and/or email;
- production of Annual Report which includes those components identified in Appendix B: The CNN Annual Report will be produced each year using the data from the CNN Core Database, with Core and Supplementary Analyses to be defined by the Steering Committee and the Data Analyst.
- coordination of Annual General Meeting: The AGM will be held annually at a location and time to be determined by the Steering Committee. The CNN Annual Report, research project reports and proposals, and budget will be presented at the AGM;
- coordination of teleconferences & meetings: The Steering Committee will meet at the AGM and at teleconferences/videoconferences at the discretion of the Steering Committee;
- maintenance of a CNN Website: CNN will maintain a website to facilitate communications between Members. The Annual Report and abstracts of publications will be available on the website. General and dedicated chat rooms and bulletin boards will be available. These can be requested through the Projects Coordinator.

CNN Coordinating Centre Staff - The CNN Coordinating Centre staff will be located at the CNN Coordinating Centre and will be responsible for the following:

- maintaining all current documents between CNN and Members;
- maintaining CNN membership lists, and preparing and monitoring membership invoices and payments;
- maintaining a copy of the current REB/IRB certificate of approvals for an Institutional Member's participation in CNN ;
- maintaining Curriculum Vitae for all participating Site Investigators;
- maintaining, and where appropriate providing, all meeting minutes and archives.

CNN Core Database - The CNN Coordinating Centre will maintain or cause to be maintained an CNN Core Database in accordance with any agreement with a Member, local and federal regulations and acts on privacy and confidentiality and the policy requirements concerning content and use of the CNN Core Database as such policies are determined by the Steering Committee.

Part 4 –Membership

Categories of Members - There are two types of Members – Institutional Members and Individual Members. Each Institutional Member and each Individual Member will following acceptance as a Member comply with all provisions of these Policies and Procedures applicable to that category of Member.

Institutional Member – A corporation, society or legal entity that operates a hospital with a treatment facility providing care for newborn infants which hospital is located in Canada approved by the Steering Committee may apply to become an Institutional Member.

A corporation, society or other legal entity that does not operate a hospital with a treatment facility providing care for newborn infants but (i) is affiliated or otherwise involved with one or more of those corporations, societies or other legal entities that does or (ii) has a role or interest in neonatal-perinatal medicine that would make its admission as an Institutional Member of benefit to CNN (the “Affiliated Applicant”) may apply to become an Institutional Member.

An application to become an Institutional Member will be reviewed and either approved or rejected in accordance with the processes and requirements established by the Steering Committee from time to time.

An Affiliated Applicant that becomes an Institutional Member will not be required to collect and provide data to CNN to be used in the creation of the CNN Core Database. The Steering Committee may also exempt an Affiliated Applicant that becomes an Institutional Member from compliance with any other provision of these Policies and Procedures that it considers inconsistent with the operations of the Affiliated Applicant. However the Steering Committee may as a condition of its approval of a membership application by an Affiliated Applicant require that Affiliated Applicant to enter into an undertaking to conduct other identified activities or provide other identified support to CNN.

- Application: Application for membership must be submitted to the Chair of the Steering Committee.
- Membership Fee: There is no membership fee for an Institutional Member.
- Representation: An Institutional Member will in conjunction with submission of its application for membership and as required thereafter designate a neonatologist, or a clinician who cares for infants in an equivalent capacity, at the site of that Institutional Member as its Site Investigator with the rights and responsibilities outlined in these Policies and Procedures.
- Renewal and Termination: Membership of an Institutional Member is on-going until terminated by: (i) the Institutional Member giving written notice to that effect to the Chair of the Steering Committee; (ii) by the Chair of the Steering Committee giving written notice to that effect to the Institutional Member if it fails to comply with any obligation of that Institutional Member pursuant to these Policies and Procedures.

Site Investigator of Institutional Member - The Site Investigator will serve as the primary representative of the Institutional Member site and will provide leadership and direction for the other staff members at that site. A Site Investigator will:

- attend at least one CNN meeting a year, and make every effort to participate in meetings to represent the Institutional Member's site regarding policies and decisions;
- hire and supervise one or more Research Assistants at the Institutional Member's site;
- ensure data collection required by the Institutional Member is maintained and up-to-date and submitted and that the same is in compliance with local regulations governing the Institutional Member;
- ensure all data collected by the Institutional Member is stored and maintained, with back-up in accordance with Institutional Member Information Systems requirements;
- ensure local IRB or Ethics Review Boards have reviewed and approved the participation of the Institutional Member in CNN and that renewals are completed each year with copies of each approval and renewal sent to the CNN Coordinating Centre.

If a Site Investigator fails to comply with the foregoing requirements, the Institutional Member that designated such Site Investigator may if it so determines, and shall upon notice to that effect from the Scientific Director, remove the designated individual as Site Investigator and designate an alternate individual who meets the requirements of these Policies and Procedures.

Research Assistant of Institutional Member - A Research Assistant (also called a chart abstractor) is responsible for accurate and efficient data collection and data transmission. A Research Assistant abstracts data directly from patient charts according to strict research protocol, maintains constant communication with the Site Investigator and the Projects Coordinator, and ensures data is transmitted to the CNN Coordinating Centre consistently and promptly. A Research Assistant is responsible for keeping up to date with the most current abstracting protocol and data definitions.

Note: the Research Assistant is the main cost, in addition to the membership fee, incurred by hospitals in becoming a member of the CNN. Each individual hospital site is responsible for employing their own Research Assistant and providing them with a computer necessary for data abstraction. Please see Appendix C for detailed information on the computer requirements. The RA could be a nurse, student or part-time employee depending on the hospital site's preference. It is estimated that you will likely need to hire the RA for approximately 3-4 days a week, depending on workload requirements at your site. In addition to the Site Investigator, your site is also free to submit the names of anyone else who may be interested in being involved in the CNN.

Individual Member – An eligible individual may apply to become an Individual Member. An eligible individual is a researcher who is affiliated with an Institutional Member or a researcher falling within such other category established from time to time through a determination of the Steering Committee in accordance with a recommendation

of the CNN Scientific Director. An application to become an Individual Member will be reviewed and either approved or rejected in accordance with the processes and requirements established by the Steering Committee from time to time.

- **Application:** Application for membership as an Individual Member (with a current curriculum vitae) must be submitted to the Projects Coordinator and must be endorsed by a current Institutional Member. An applicant for membership as an Individual Member should have expertise and/or experience relevant to CNN research goals and in the absence of evidence of such expertise and/or experience the application for membership may be declined.
- **Membership Fee:** There is no membership fee for an Individual Member.
- **Obligations:** Members may use CNN infrastructure for research collaboration and cooperation. However, research projects using network data must be approved by the Steering Committee.
- **Renewal and Termination:** Individual membership must be renewed every year in accordance with a process established by the Steering Committee. Membership of an Individual Member will be terminated by: (i) failure to apply for, or be approved, for an annual renewal; (ii) the Individual Member giving written notice to that effect to the Chair of the Steering Committee; (ii) by the Chair of the Steering Committee giving written notice to that effect to the Individual Member if that Individual Member fails to comply with any obligation of that Individual Member pursuant to these Policies and Procedures; or (iii) if the individual that is that Individual Member ceases to be an eligible individual for the purpose of applying to become an Individual Member.

Part 5 - Research Projects

Research projects are initiated by groups of researchers, led by a principal investigator. Project applications are submitted in abstract form to the Steering Committee, who will ensure that there are no conflicts with existing studies, and approve projects for discussion by the CNN within three weeks of receipt.

- **Project ownership:** The principal investigator and associated researchers of a project retain ownership of the project and project protocol for the duration of the project. Such ownership lapses if an approved project is not initiated within two years of approval.
- **Publication rights:** Please see the next section 'Publications' for prescribed guidelines.

Part 6 – Publications

The following outlines the policy on publications based on results produced from the CNN Core Database and its related projects and databases:

Authorship

- 1) Any publication from the CNN will be authored using the rules laid out below for CNN members, paid staff members, non-paid contributors and other students.
- 2) The Canadian Neonatal Network™ will be included as the final author in each publication.
- 3) In the case of a working group: Each working group leader will be responsible for allocating lead authorship and writing responsibilities for publications. Lead authorship will be on a rotating basis among members of working groups. In the event of a disagreement, a decision will be made by the Steering Committee.
- 4) *Sunset Clause* – Authors pursuing a topic will have up to two years from the time of assignment to produce a scientific work. Lack of substantial progress within that year (as evidenced by production of an abstract and a significant body of analyses) will relinquish their authorship priority. Extensions can be granted if there are documented problems with data quality, acquisition, etc.

For CNN Members:

Their name(s) will be included in the author's list when one of the following conditions is met:

- 1) The member initiated the project resulting in a publication **OR**
- 2) The member is involved in the working group for this project **OR**
- 3) The member is involved in the publication and is put forward by the project initiator to the CNN Steering Committee to be an author.

For paid staff members:

Their name(s) will be included in the author's list when one of the following conditions is met:

- 1) The staff member initiated the project resulting in a publication and it was decided upon up front by those involved that they would have their name within the author's list **OR**
- 2) The staff member was involved in the project at a later date, they have contributed to the writing of the publication and the first author has received approval from the CNN Steering Committee to include their name.

For non-paid contributors (Post-doctoral Fellows, Medical Trainees, Graduate Students):

Their name(s) will be included in the author's list when one of the following conditions is met:

- 1) The student initiated the project resulting in a publication and it was decided upon up front by those involved that they would have their name within the author's list **OR**
- 2) The project is part of the student's Ph.D or MSc. dissertation **OR**
- 3) The student made an active intellectual contribution.

For other students (Medical, Co-op, Undergraduate):

Please see the above policy for non-paid contributors.

Publications/Manuscripts/Abstracts

- 1) Manuscripts and abstracts resulting from CNN and site data must be reviewed by the Steering Committee prior to submission for publication.
- 2) Papers published by local sites or by other parties using either local and/or CNN data must acknowledge the Canadian Neonatal Network™.
- 3) A copy of manuscripts resulting from local and/or CNN Core Database must be forwarded to the CNN Coordinating Centre.

International Comparisons

Studies on international comparisons will be authored by the principal investigators from each of the Networks together with the names of the Networks. Members of the Networks will be named as part of their respective Networks.

For questions regarding the publications policies or any other policies/procedures, please contact:

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Part 7 - Changes to Policies and Procedures

These Policies and Procedures may be altered from time to time through a determination of the Steering Committee consented to by the CNN Scientific Director. Any such alteration must be posted on the CNN website and is not effective as an alteration to these Policies and Procedures until thirty (30) days following such posting.

Appendix A

Participating Hospitals

CNN Institution	CNN Site Investigator
Victoria General Hospital, Victoria, BC	Dr Cherrie Tan-Dy
BC Children's Hospital, Vancouver, BC	Dr Anne Synnes
Royal Columbian Hospital, New Westminster, BC	Dr Todd Sorokan
Foothills Medical Centre, Calgary, AB	Dr Nalini Singhal
Royal Alexandra Hospital, Edmonton, AB	Dr Abraham Peliowski
Regina General Hospital, Regina, SK	Dr Abraham Ninan
Royal University Hospital, Saskatoon, SK	Dr Koravangattu Sankaran
St. Boniface General Hospital, Winnipeg, MB	Dr Gerarda Cronin
Winnipeg Health Sciences Centre, Winnipeg, MB	Dr Mary K Seshia
Hamilton Health Sciences Centre, Hamilton, ON	Dr Kenneth Tan
St. Joseph's Health Centre, London, ON	Dr David S Lee
Hospital for Sick Children, Toronto, ON	Dr Andrew James
Mount Sinai Hospital, Toronto, ON	Dr Arne Ohlsson
Sunnybrook Health Sciences Centre, Toronto, ON	Dr Michael Dunn
Kingston General Hospital, Kingston, ON	Dr Maxine Clarke
Children's Hospital of Eastern Ottawa, Ottawa, ON	Dr Nicole Rouvinez-Bouali
Hôpital Sainte-Justine, Montréal, QC	Dr Francine Lefebvre
Jewish General Hospital, Montréal, QC	Dr Lajos Kovacs
Montréal Children's Hospital, Montréal, QC	Dr Patricia Riley
Royal Victoria Hospital, Montréal, QC	Dr Keith Barrington
Hôpital Maisonneuve-Rosemont, Montréal, QC	Dr Jean Lachapelle
Centre Hospitalier Universitaire de Québec, Québec, QC	Dr Bruno Piedboeuf
Centre Hospitalier Universitaire de Sherbrooke, Sherbrooke, QC	Dr Hervé Walti
IWK Health Centre, Halifax, NS	Dr Douglas McMillan
Cape Breton Regional Hospital, Sydney, NS	Dr Andrzej Kajetanowicz
St. John Regional Hospital, Saint John, NB	Dr Cecil Ojah
Moncton Hospital, Moncton, NB	Dr Roderick Canning
Dr Everett Chalmers Hospital, Fredericton, NB	Dr Barbara Bulleid
Janeway Children's Health Centre, St. John's, NL	Dr Wayne Andrews

Appendix B

Components of Annual Report

Results in the report will comprise of the following categories:

- i. Population demographics;
- ii. Population incidence of common neonatal complications; and
- iii. Descriptive and risk adjusted analyses of survival and outcomes by site

The following outlines the Core Analyses and Supplementary Core Analyses:

- i. Core Analyses

Methods		
Validation		Obstetric Info
SNAP II		SNAP vs. CRIB
Transport Score		Congenital Anomalies
Outcomes		
Mortality		PDA
BPD		Air-Leak
IVH		Seizures
Infection		Surgery
NEC		Bili
ROP		HIE/Asphyxia
Follow-up		Discharge/Post-transfer
Technology		
Transfusions		Monitoring
Ventilation		Procedures
Parenteral nutrition		Pressors
Catheter use		ECMO/N ₂ O
Steroid use		Tracheostomy
Medications		
Resource		
Resource availability		New technology adoption
<i>Technology utilization</i>	<i>Resource utilization</i>	<i>Intensity of care</i>
CT	RN	NTISS
ECMO	MD	DOV
Vent	Beds	DOPK
Referral	Budget	Pain management
Surgery		# of transfers

- ii. Supplementary Core Analyses – those subsequently determined by the group to be part of the core analyses

For confidentiality reasons, all analyses of core data (Core Analyses, Supplemental Core Analyses) will remain within the Coordinating Centre. Specifically, there will be no release of multi-site raw data.

Note: Data from all sites who have provided complete data will be used in the analyses, but only aggregated data will be reported; sites will be identified by a randomly assigned number code. Wherever a small cell size (≤ 5) is observed in the data output, every effort will be made to group the data to maintain anonymity.

Appendix C

Computer Requirements for the CNN/EPIC/INC Database Systems

August 11, 2006

The followings are the minimum requirements of a computer (desktop or laptop) which is used to run the CNN/EPIC/INC database systems. The requirements are listed in 3 sections below:

- 1) The hardware requirements,
- 2) The software requirements, and
- 3) The Internet access requirements.

Please note: A computer is required to meet ALL the requirements in ALL 3 sections in order to run the CNN/EPIC/INC database systems.

Section (1): Hardware requirements:

The computer must have the following hardware components:

- 1) Intel Pentium III Processor(s) or higher,
- 2) 256MB RAM or more, and
- 3) Internet connection hardware (e.g. Ethernet adapter card)

Section (2): Software requirements:

The computer must have the following software installed:

- 1) Windows 2000, or Windows XP,
- 2) Microsoft Access 2000,
- 3) .NET framework 1.1,
- 4) MDAC 2.8 or higher, and
- 5) Regional Settings/Date Format being set to "yyyy-MM-dd"
- 6) Anti-virus software with up-to-dated virus definitions

Microsoft Access 2000 is part of Microsoft Office Professional or can be purchased separately. The .NET Framework 1.1 and MDAC 2.8 (or higher) can be downloaded from the Internet for free.

For instructions of how to download MDAC and the .NET Framework, please refer to Appendix A of this document.

Please note: If you are on a hospital network, you may require your administrator's permission to install MDAC and the .NET framework. Please let your Computer Services know that you have downloaded these programs and they will then provide access for you.

Section (3): Internet access requirements:

Users of the CNN/EPIC/INC database systems will frequently call the “Update” or “Upload” functions, in order to bring the database systems up-to-dated, or to submit data to the data coordinating centre respectively. When these “Update” or “Upload” functions are called, the CNN/EPIC/INC database systems will initiate Internet connections (in particular HTTP connections) to contact the web servers at the data coordinating centre to carry out the corresponding operations.

Whether Internet connections can be made successfully will also depend on the network settings of your local network (e.g. your hospital network). Firewalls, proxy servers, etc., on your local network, which sits between the CNN/EPIC/INC database systems and the web servers at the data coordinating centre, may be pre-configured to not to allow your CNN/EPIC/INC database systems to make such Internet connections.

We recommend you to inform your Computer Services department about the CNN/EPIC/INC database systems, as well as the Internet connections required, and they will then provide access on the firewalls (or proxy servers, etc.) for the CNN/EPIC/INC database systems.

Please refer to Appendix B for more technical information about the Internet connections that the CNN/EPIC/INC database systems require.

Appendix A: Downloading MDAC and the .NET Framework:

To download MDAC 2.8:

- 1) Please go to www.microsoft.com
- 2) Type "MDAC" in the search field in the upper right hand corner of the Microsoft Home page and click "Search"
- 3) Click on "MDAC Downloads"
- 4) Click on #1 "[MDAC 2.8](#)"
- 5) If necessary, click on "Continue" to validate your eligibility to download the software
- 6) Click on "Download" to start downloading the software
- 7) When asked if you would like to open the file or save it to your computer, please click "Save"
- 8) Save the file to a folder where you will keep your CNN/EPIC/INC databases
- 9) Once you have saved the file, click "Open" and your computer will do the rest!

To download .NET Framework:

- 1) Please go to www.microsoft.com
- 2) Type in ".NET Framework" in the search field in the upper right hand corner of the Microsoft Home page and click "Search".
- 3) Click on ".NET Downloads"
- 4) Click on #1 "Download details: .NET Framework Version 1.1 Redistributable Package"
- 5) Click on "Download" to start downloading the software
- 6) When asked if you would like to open the file or save it to your computer, please click "Save"
- 7) Save the file to a folder where you will keep your CNN/EPIC/INC Databases
- 8) Once you have saved the file, click "Open" and your computer will do the rest!

Appendix B: Inter-Machine Connections of the CNN/EPIC/INC Database Systems

The CNN/EPIC/INC database systems (a.k.a. CNN/EPIC/INC systems) will only make 3 different kinds of inter-machine connections:

1) HTTP connection for downloading:

When users call the "Update" function, the CNN/EPIC/INC systems will initiate HTTP connections to one of the web servers at the data coordinating centre to download a series of files. After finishing these downloading, all connections to the web server will be closed. The files downloaded will then serve as new components of the CNN/EPIC/INC systems.

2) HTTP connection for file uploading:

When users call the "Upload" function, the CNN/EPIC/INC systems will create a temporary file which contains a copy of all the local data EXCLUDING any patient identifiers. Then, the CNN/EPIC/INC systems will initiate a HTTP connection to one of the web servers at the data coordinating centre to upload this temporary file to the web server. After the uploading, the connection to the web server will be closed.

3) Windows network drive connection:

The CNN/EPIC/INC systems allow users to have the flexibility to store their local data anywhere on either the local hard disks or the network drives. If the local data are stored on a network drive connecting to a remote machine, while the user is using the CNN/EPIC/INC systems, the CNN/EPIC/INC systems will make frequent ADO or DAO connections to the local data (which is stored as a Microsoft Access 2000 .mdb file).

Making connection type 1 and 2 above are standard and required operations of the CNN/EPIC/INC systems when users call the "Update" or "Upload" functions. Connections of type 3 above may be avoided depending on how users set up their own copy of the CNN/EPIC/INC systems.

Firewalls, proxy servers, etc., sitting between the CNN/EPIC/INC systems and the web servers at the data coordinating centre may not allow the successful connections of type 1 or type 2 to be made. In such a case, additional configurations may be needed at the firewalls (or proxy servers, etc.) in order for the users to carry out the "Update" and the "Upload" functions. Please consult with administrators of these firewall (or proxy servers, etc.) to verify if these connections are allowed on your computer network.

Please note that the CNN/EPIC/INC systems is a standalone network application which will initiate HTTP connections (type 1 and 2 above) directly to pre-designated web servers on the Internet. The CNN/EPIC/INC systems DO NOT initiate these HTTP connections by calling local web browsers on the users' computers.