

NEW JERSEY COMMISSION ON BRAIN INJURY RESEARCH

2006 Annual Report

Honorable Jon S. Corzine
Governor

Fred M. Jacobs, M.D., J.D.
Commissioner

Keith Cicerone, P.h.D.
Chairman

New Jersey Commission on
Brain Injury Research

New Jersey Commission on Brain Injury Research

Members of the Commission

Keith Cicerone, Ph.D., Chairman

Meiling Chin, MBA, Vice Chair

Richard Burns, M.D.

Emanuel DiCicco-Bloom, M.D.

Karl Herrup, PhD.

Cynthia Kirchner, MPH

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9/12/06

The Honorable Jon S. Corzine
Governor
Office of the Governor
State House-PO Box 001
Trenton, NJ 08625

Dear Governor Corzine:

It is a privilege to submit the report of the New Jersey Commission on Brain Injury Research for your review and approval. I believe that the first year of operation of the Commission has been very successful and a firm base has been established for advancing research in New Jersey that will increase our understanding of the mechanisms of damage from traumatic brain injury, and the development of innovative methods of promoting neural repair and regeneration, and methods of rehabilitation. The research objectives of the NJ Commission on Brain Injury Research emphasize the advancement of the field through basic and translational science. Of course, the ultimate goal of the research supported through the commission is to promote full recovery for people who have sustained a traumatic brain injury and allow them to live fulfilling and productive lives. We are at the beginning of a long and exciting journey.

I would like to acknowledge the support of the New Jersey Department of Health and Senior Services toward establishing the Commission and completion of our initial research initiatives. I would also like to specifically acknowledge and thank the Executive Director, Dennis Benigno, for his vision, encouragement and support of these efforts to improve the quality of brain injury research in New Jersey, and to improve the quality of life for people who have sustained traumatic brain injuries.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith D. Cicerone". The signature is written in a cursive, flowing style.

Keith D. Cicerone, Ph.D.
Chairperson

ACKNOWLEDGMENTS

The NJCBIR would like to express its sincere appreciation to all Commission members, and to the New Jersey Department of Health and Senior Services for the expertise, time, and effort that contributed to the development of this report.

The NJCBIR also acknowledges the contributions of Katherine Hempstead, Ph.D., and Darryl Brown, Ph.D., Brain Injury Registry Manager, of the Center for Health Statistics for the brain injury surveillance statistics, and to Commission staff members Dennis Benigno and Brian Loos for their contributions of substantial material as well as their review and valuable comment.

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New Jersey Commission on Brain Injury Research

I. INTRODUCTION

Purpose of the Report

This report is being submitted in fulfillment of the legislative mandate in the *N.J.S.A 52:9EE-1, et seq.* (P.L.2003, c.200). The report describes the implementation of the Brain Injury Research Act (the Act) and evaluates the benefit of the Act for future grant recipients within the neuroscience community.

Intent of the Brain Injury Research Act

The Act was established in January 2004 with the signing of P.L. 2003, 200. It resulted from the collaborative efforts of people with brain injuries and their families, clinicians, scientists, public officials, and representatives of research, rehabilitation, nonprofit organizations. The Act anticipates that brain injury research will lead to effective treatments and cures for brain injuries and other consequences of brain injury.

Approximately 175,000 New Jersey residents suffer from traumatic injuries that damage the brain. Approximately 12,000 new brain injuries occur each year in New Jersey. The economic consequences of the resulting physical disabilities are enormous. Medical and long term care costs to the nation's economy are estimated to be 48 billion dollars annually. The personal toll on individuals and families with brain injuries is incalculable.

Summary of the Act

Legislation was sponsored by Senators Joe Vitale and Nia Gill in the Senate; Assemblymen Edward Willis and Peter Eagler sponsored the Assembly version. The Act created the New Jersey Commission on Brain Injury Research (NJCIBIR) whose responsibility is to solicit, approve and administer the support of research grants. The NJCIBIR promotes and funds brain injury research in conjunction with approved research institutions within the State of New Jersey that focus on the development and cure of brain injuries and the effects associated with them.

The NJCIBIR is establishing and will maintain, in conjunction with the New Jersey Department of Health and Senior Services (NJDHSS), a central registry of persons who sustain brain injuries other than through disease. Health care facilities and providers are required under the Act to report each case of brain injury to the Registry, through regulations established by the NJCIBIR. Those failing to comply with the provisions of the Act will be liable for a penalty of up to \$100 per unreported brain injury case. A penalty sued for under the provisions of the Act shall be recovered by and in the name of the NJCIBIR and will be deposited in the New Jersey Brain Injury Research Fund.

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The New Jersey Brain Injury Research Fund is collected from a \$1.00 surcharge collected from any fine and penalty collected under the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation in the State. The surcharge is collected and forwarded to the State Treasurer. The State Treasurer will annually deposit monies in to the Fund established pursuant to Section 9 of P.L. 199, c.202 (C.52:9E-9).

To comply with the provisions of Article VIII, Section II, paragraph 5 of the State Constitution, a municipal or county agency which forwards monies to the State Treasurer pursuant to this subsection may retain an amount equal to two percent of the monies which it collects as compensation for its administrative costs associated with implementing the provisions of this subsection.

The NJCBIR will compile an annual directory of all its funded brain injury research projects within the State of New Jersey.

On September 15th of this year only, due to start up and other considerations, the NJCBIR will present its annual report to the Governor and Legislature.

Program Objectives

The NJCBIR is committed to accelerating research to develop effective interventions and cures for the disabilities associated with traumatic brain injury. Its primary objectives are:

- To advance the field of brain cell repair and regeneration in the New Jersey research community by encouraging established scientists to apply their expertise to the brain.
- To foster collaborative, interdisciplinary approaches to brain injury research.
- To develop models of neural repair and regeneration that establishes a basis for additional scientific investigation.
- To develop models of neural repair and regeneration after brain injury that can lead to clinical interventions.
- To promote dissemination of the research findings generated by those scientists supported by the NJCBIR.

NJCBIR awards are intended to promote collaboration among brain injury researchers in New Jersey and encourage innovative research, not to provide long-term support. Grantees are eligible to apply for funding for additional research projects; all applications will be reviewed competitively.

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Funding Priorities

The New Jersey Commission on Brain Injury Research will fund research activities that hold promise of developing effective interventions and cures for the disabilities associated with traumatic brain injury. The areas of research listed below highlight the focus of current NJCBIR emphasis and funding:

- Studying strategies to promote neuronal growth and survival, encourage the formation of synapses, enhance appropriate myelination, restore axonal conduction, replace or regenerate injured brain cells, or otherwise improve function after brain injury.
- Evaluating efficacy of drugs and other interventions that prevent or reduce secondary neuronal injury or providing insight into the mechanisms causing progressive damage.
- Defining anatomical characteristics of brain injury in well-defined animal models and in the human brain, specifically documenting the cellular systems vulnerable to injury and the functional losses which occur as a result thereof.
- Translational research on the mechanism and interventions that promote recovery of function after brain injury.
- Demonstrating the efficacy of innovative rehabilitation strategies based on basic research those offers promise to promote recovery of function through their clinical application.

Anticipated Results

The NJCBIR's goal is to enhance New Jersey's role in the worldwide movement to develop effective treatments and cures for brain injuries and their effects. The NJCBIR will encourage and support meritorious scientific research in New Jersey in pursuit of that goal. This will benefit the State of New Jersey in savings on medical and support costs, enhance the development of the State's public and private biomedical sector, establish leadership in the field of brain injury treatments and cures, and improve the lives of those living with brain injuries and their effects.

Budget Management – Proposal for State Fiscal Year 2007

The NJCBIR intends to fully fund meritorious and relevant scientific research for a total not to exceed \$4.2 million during State Fiscal Year 2007. Two types of grant awards will be offered – Individual Researcher Grants and Programmatic Multi-Investigator Project Grants.

- **Individual Research Grant**

The NJCBIR will fund Individual Research Grants with an emphasis on (1) strategies to promote neuronal repair and regeneration after traumatic brain injury, or (2)

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translational research that establishes the relevance of basic research findings to clinical application in human subjects. Applicants are encouraged to apply for a one-year or two-year award. Maximum funding is up to \$150,000 per year including direct and indirect costs (10% maximum for the latter).

The goals of this program are (1) to encourage investigators to undertake research on neural protection, repair and regeneration after traumatic brain injury; (2) to encourage scientists with established research programs in related areas to apply their efforts to brain injury research; and (3) to enable researchers with novel scientific and clinical ideas to test them and develop pilot data needed to develop a programmatic area of research that can be supported by additional funding from the National Institutes of Health, and other funding sources.

• Programmatic Multi-Investigator Project Grants

The NJCBIR will fund programmatic project grants that support collaborative research from at least 4 investigators from different laboratories with an emphasis on traumatic brain injury. Preference will be given to proposals that demonstrate complimentary approaches to addressing a research question through multidisciplinary investigations (e.g., molecular, genetic, physiologic and pharmacologic approaches).

Collaborations are encouraged among independent laboratories within the same institution, or among laboratories from different institutions. The principal investigator must be located within a qualifying institution in the State of New Jersey. Proposals must identify a principal investigator within each research site as well as an overall Principal Investigator who is responsible for ensuring collaboration among all investigators. Applicants are encouraged to apply for a one-year or two-year award. Maximum funding is up to \$1,000,000 per year including direct and indirect costs (10% maximum for the latter).

II. ACCOMPLISHMENTS OF THE COMMISSION

The first NJCBIR meeting was held on May 10, 2005. Since that time the Commission has been working to develop the processes and procedures that will be used for the NJCBIR's initial grant posting which occurred in the Summer of 2006. Significant effort was directed towards the following:

Ten members currently serve on the Commission. See Appendix C. Commission Officers are: Keith Cicerone, PhD as Chairman and Meiling Chin, MBA as Vice Chair respectively. A Research Committee was also established which developed the Research Guidelines that are to be used by applicants when applying for funding from the NJCBIR and also in determining which applications will be funded during the

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review process. The Research Guidelines (Appendix B) were approved by the Commission on January 5, 2006.

A Legislative and Bylaws Committee was also formed to develop the Bylaws which dictate the operating procedures of the NJCBIR and the duties of the NJCBIR staff. The regulations are published in the New Jersey Register and ultimately will reside in the New Jersey Statutes Annotated.

- **New Jersey Brain Injury Registry**

The "Brain Injury Research Act" enacted by the Senate and General Assembly of the State of New Jersey in 2004, mandated the establishment of a central registry of people who sustain brain injuries throughout the State. This registry will provide a database indicating the incidence and prevalence of brain injuries and will serve as a resource for research, evaluation, and information on brain injuries.

The NJCBIR maintains a Memorandum of Agreement with the New Jersey Department of Health and Senior Services' Center for Health Statistics (CHS) to provide for the collection and analysis of brain injury data. The Registry, directed by Darryl Brown, Ph.D., collects brain injury data from New Jersey hospitals, provides analysis of that data for health professionals

- **Formation of the Independent Scientific Review Panel (ISRP)**

As authorized by the "Brain Injury Research Act", the Commission staff has been actively seeking out of state scientists and clinicians, who are experts in the field, who are not members of the Commission and who reside outside of New Jersey to review proposals submitted to the Commission and make funding recommendations to the Commission based upon the scientific merit of the application and the funding priorities established by the Commission.

Presently the ISRP has approximately thirty members. The Commission hopes to eventually have between fifty and one hundred scientists and clinicians serve on the ISRP, who will meet and make recommendations based on the priorities established by the Commission. The Commission will review the recommendations of the ISRP and decide which grant applications to fund.

- **Outreach Efforts**

The NJCBIR has actively been reaching out to the State's universities, colleges and public and private research institutions to make them aware of the Commission, its mission and the funding it has to offer for brain injury research. Through this outreach, the Commission hopes to increase interest the scientific community and increase the number and quality of applications submitted for funding.

III. RELATIONSHIP TO THE NEW JERSEY STATE DEPARTMENT OF HEALTH AND SENIOR SERVICES

THE NJCBIR is established in, but not of, the New Jersey Department of Health and Senior Services (NJDHSS). Within NJDHSS, the office of the NJCBIR is

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administratively assigned in the Office of the Commissioner. The NJCBIR participates in various within the NJDHSS and benefits from the support services available in the Department, including fiscal, human resources, Center for Health Statistics, regulatory aspects and information technology services. NJDHSS provides a supportive framework in which the NJCBIR works to effectively implement its mission of service to the public.

Membership

The membership of the NJCBIR is limited to eleven. The membership consists of the following: Commissioner of the NJDHSS, or Commissioner's designee, who serves ex-officio; one representative from the University of Medicine and Dentistry of New Jersey; one representative from Rutgers, The State University; six public members, appointed by the Governor with the advice and consent of the Senate including: one licensed Physician in the State and one Person with a Brain Injury; one Public Member appointed by the President of the Senate; and one Public Member appointed by the Speaker of the Assembly.

All Public Members shall be residents of the State, or otherwise associated with the State, and shall be known for their knowledge, competence, experience or interest in brain injury medical research.

The Commissioner of the NJDHSS may designate an officer or employee of his/her Department to represent him/her at meetings of the NJCBIR, and the designee may lawfully vote and otherwise act on behalf of the NJCBIR.

The term of office for each for each member of the NJCBIR is for three years, of the members first appointed, three shall be appointed for one year, three for two years, and two for three years. All vacancies shall be filled for the balances of the unexpired terms. Members are eligible reappointment and shall continue to serve upon the expiration of his/her term until a successor is appointed.

Members of the NJCBIR serve without compensation, but shall be reimbursed by the NJCBIR for the actual and necessary expenses incurred in the performance of their duties as members of the NJCBIR.

IV. REVENUE AND EXPENDITURES

In accordance with the provisions of P.L. 2003, C.200 (c.52:9EE-9) a \$1 surcharge was added to the amount of each fine and penalty imposed and collected under authority of any law for any violation of the provisions of Title 39 or any other motor vehicle or traffic violation in the State of New Jersey. This surcharge is forwarded to the State Treasure and deposited in the "New Jersey Brain Injury Research Fund". The law took effect on July 1, 2004. Interest earned on the money collected, through the Division of Investments, New Jersey State Department of Treasury, is credited to the Fund.

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Projected expenditures for State Fiscal Year 2006 are documented in the New Jersey Brain Injury Research Fund Balance Statement.

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Fund Balance Statement

	Actual FY 2005/2006	Projected FY 2007	Totals
Revenue	\$7,140,869	\$3,600,000	\$10,740,869
Expenditures	\$392,000	\$521,127	\$913,127
Projected 1 st Grant Cycle Not To Exceed			\$4,200,000
Net Balance			\$5,627,742

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APPENDIX A

CHAPTER 200

AN ACT establishing a New Jersey Commission on Brain Injury Research, supplementing Title 52 of the Revised Statutes and amending R.S.39:5-41.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

C.52:9EE-1 Short title.

1. This act shall be known and may be cited as the "Brain Injury Research Act."

C.52:9EE-2 Definitions relative to brain injury research.

2. As used in this act:

"Approved research project" means a scientific research project, which is approved by the commission and which focuses on the treatment and cure of brain injuries.

"Commission" means the New Jersey State Commission on Brain Injury Research established pursuant to this act.

"Institutional support services" means all services, facilities, equipment, personnel and expenditures associated with the creation and maintenance of approved research projects.

"Qualifying research institution" means the University of Medicine and Dentistry of New Jersey and Rutgers, The State University of New Jersey and any other institution approved by the commission, which is conducting an approved research project.

C.52:9EE-3 New Jersey State Commission on Brain Injury Research.

3. a. There is established in the Executive Branch of the State government, the New Jersey State Commission on Brain Injury Research. For the purposes of complying with the provisions of Article V, Section IV, paragraph 1 of the New Jersey Constitution, the commission is allocated within the Department of Health and Senior Services, but notwithstanding that allocation, the commission shall be independent of any supervision or control by the department or by any board or officer thereof.

- b. The commission shall consist of 11 members, including the Commissioner of Health and Senior Services, or his designee, who shall serve ex officio; one representative of the University of Medicine and Dentistry of New Jersey; one representative of Rutgers, The State University of New Jersey; six public members, appointed by the Governor with the advice and consent of the Senate, one of whom shall be a licensed physician in this State and one of whom shall be a person with a brain injury; and two public members, one of whom shall be appointed by the President of the Senate and one of whom shall be appointed by the Speaker of the General Assembly. All public members shall be residents of the State or otherwise associated with the State, and shall be known for their knowledge, competence, experience or interest in brain injury medical research.

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c. The term of office of each public member shall be three years, but of the members first appointed, three shall be appointed for terms of one year, three for terms of two years, and two for terms of three years. All vacancies shall be filled for the balances of the unexpired terms in the same manner as the original appointments. Appointed members are eligible for reappointment upon the expiration of their terms. A member shall continue to serve upon the expiration of his term until a successor is appointed.

The members of the commission shall not receive compensation for their services, but shall be reimbursed for the actual and necessary expenses incurred in the performance of their duties as members of the commission.

C.52:9EE-4 Duties of commission.

4. The commission shall:

a. Review and authorize approved research projects, emphasizing projects that study nerve regeneration as a means to a cure for brain injury, and may establish an independent scientific advisory panel composed of scientists and clinicians who are not members of the commission to review proposals submitted to the commission and make funding recommendations to the commission;

b. Apportion all available funds to qualifying research institutions to finance approved research projects and necessary institutional support services;

c. Ensure that funds so apportioned to approved research projects are not diverted to any other use;

d. Take steps necessary to encourage the development within the State of brain injury research projects;

e. Compile a directory of all brain injury research projects being conducted in the State; and

f. Provide the Governor and the Legislature with a report by January 30 of each year describing the status of the commission's activities and the results of its funded research efforts.

C.52:9EE-5 Authority of commission.

5. The commission is authorized to:

a. Adopt rules and regulations concerning the operation of the commission, the functions and responsibilities of its officers and employees, the use of moneys from the "New Jersey Brain Injury Research Fund" established pursuant to section 9 of P.L.2003, c.200 (C.52:9EE-9) to meet the operating expenses of the commission, and other matters as may be necessary to carry out the purposes of this act;

b. Maintain offices at such places within the State as it may designate;

c. Employ an executive director and other personnel as may be necessary, whose employment shall be in the unclassified service of the State, except that employees performing stenographic or clerical duties shall be appointed pursuant to Title 11A (Civil Service) of the New Jersey Statutes;

d. Design a fair and equitable system for the solicitation, evaluation and approval of proposals for brain injury research projects;

e. Apply for and accept any grant of money from the federal government, which may be available for programs relating to research on brain injury;

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f. Enter into contracts with individuals, organizations and institutions necessary or incidental to the performance of its duties and the execution of its powers under this act; and

g. Accept gifts, grants and bequests of funds from individuals, foundations, corporations, governmental agencies and other organizations and institutions.

C.52:9EE-6 Election of officers.

6. The commission shall annually elect a chairman and a vice-chairman from among its members. The chairman shall be the chief executive officer of the commission, shall preside at all meetings of the commission and shall perform other duties that the commission may prescribe.

The executive director shall serve as secretary to the commission and shall carry out its policies under the direction of the chairman.

C.52:9EE-7 Direct applications for funds.

7. Nothing in this act shall preclude a qualifying research institution or any other research facility in the State from directly applying for or receiving funds from any public or private agency to conduct brain injury research.

C.52:9EE-8 Central registry of persons who sustain brain injuries.

8. a. The commission shall establish and maintain, in conjunction with the Department of Health and Senior Services, a central registry of persons who sustain brain injuries other than through disease, whether or not the injury results in a permanent disability, in order to provide a database that indicates the incidence and prevalence of brain injuries and that will serve as a resource for research, evaluation and information on brain injuries and available services.

b. The commission shall require the reporting of all cases of brain injuries, except those caused through disease, and the submission of specified additional information on reported cases as it deems necessary and appropriate.

The commission shall, by regulation, specify the health care facilities and providers required to make the report of a brain injury to the registry, information that shall be included in the report to the registry, the method for making the report and the time period in which the report shall be made.

c. The reports made pursuant to this section are to be used only by the commission and the Department of Health and Senior Services and such other agencies as may be designated by the commission or the department and shall not otherwise be divulged or made public so as to disclose the identity of any person to whom they relate; and to that end, the reports shall not be included under materials available to public inspection pursuant to P.L.1963, c.73 (C.47:1A-1 et seq.) and P.L.2001, c.404 (C.47:1A-5 et al.).

d. No individual or organization providing information to the commission in accordance with this section shall be deemed to be, or held liable for, divulging confidential information. Nothing in this section shall be construed to compel any individual to submit to medical, commission or department examination or supervision.

e. A health care facility or health care provider who is required to report a brain injury to the commission and who fails to comply with the provisions of this section shall be liable to a penalty of up to \$100 per unreported brain injury case. A penalty sued for

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under the provisions of this section shall be recovered by and in the name of the commission and shall be deposited in the "New Jersey Brain Injury Research Fund" established pursuant to this act.

C.52:9EE-9 "New Jersey Brain Injury Research Fund."

9. a. There is established in the Department of the Treasury a nonlapsing revolving fund to be known as the "New Jersey Brain Injury Research Fund." This fund shall be the repository for moneys provided pursuant to subsection f. of R.S.39:5-41. Moneys deposited in the fund, and any interest earned thereon, shall be used for the purpose of making grants for brain injury research projects at qualified research institutions approved by the New Jersey State Commission on Brain Injury Research, and for the purpose of meeting the operating expenses of the commission.

b. Any costs incurred by the department in the collection or administration of the fund may be deducted from the funds deposited therein, as determined by the Director of the Division of Budget and Accounting.

10. R.S.39:5-41 is amended to read as follows:

Fines, penalties, forfeitures, disposition of; exceptions.

39:5-41. a. All fines, penalties and forfeitures imposed and collected under authority of law for any violations of R.S.39:4-63 and R.S.39:4-64 shall be forwarded by the judge to whom the same have been paid to the proper financial officer of a county, if the violation occurred within the jurisdiction of that county's central municipal court, established pursuant to N.J.S.2B:12-1 et seq. or the municipality wherein the violation occurred, to be used by the county or municipality to help finance litter control activities in addition to or supplementing existing litter pickup and removal activities in the municipality.

b. Except as otherwise provided by subsection a. of this section, all fines, penalties and forfeitures imposed and collected under authority of law for any violations of the provisions of this Title, other than those violations in which the complaining witness is the director, a member of his staff, a member of the State Police, a member of a county police department and force or a county park police system in a county that has established a central municipal court, an inspector of the Board of Public Utilities, or a law enforcement officer of any other State agency, shall be forwarded by the judge to whom the same have been paid as follows: one-half of the total amount collected to the financial officer, as designated by the local governing body, of the respective municipalities wherein the violations occurred, to be used by the municipality for general municipal use and to defray the cost of operating the municipal court; and one-half of the total amount collected to the proper financial officer of the county wherein they were collected, to be used by the county as a fund for the construction, reconstruction, maintenance and repair of roads and bridges, snow removal, the acquisition and purchase of rights-of-way, and the purchase, replacement and repair of equipment for use on said roads and bridges therein. Up to 25% of the money received by a municipality pursuant to this subsection, but not more than the actual amount budgeted for the municipal court, whichever is less, may be used to upgrade case processing.

All fines, penalties and forfeitures imposed and collected under authority of law for any violations of the provisions of this Title, in which the complaining witness is a

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member of a county police department and force or a county park police system in a county that has established a central municipal court, shall be forwarded by the judge to whom the same have been paid to the financial officer, designated by the governing body of the county, for all violations occurring within the jurisdiction of that court, to be used for general county use and to defray the cost of operating the central municipal court.

Whenever any county has deposited moneys collected pursuant to this section in a special trust fund in lieu of expending the same for the purposes authorized by this section, it may withdraw from said special trust fund in any year an amount which is not in excess of the amount expended by the county over the immediately preceding three-year period from general county revenues for said purposes. Such moneys withdrawn from the trust fund shall be accounted for and used as are other general county revenues.

c. (Deleted by amendment, P.L.1993, c.293.)

d. Notwithstanding the provisions of subsections a. and b. of this section, \$1 shall be added to the amount of each fine and penalty imposed and collected through a court under authority of any law for any violation of the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation in this State and shall be forwarded by the person to whom the same are paid to the State Treasurer. In addition, upon the forfeiture of bail, \$1 of that forfeiture shall be forwarded to the State Treasurer. The State Treasurer shall annually deposit those moneys so forwarded in the "Body Armor Replacement" fund established pursuant to section 1 of P.L.1997, c.177 (C.52:17B-4.4). Beginning in the fiscal year next following the effective date of this act, the State Treasurer annually shall allocate from those moneys so forwarded an amount not to exceed \$400,000 to the Department of Personnel to be expended exclusively for the purposes of funding the operation of the "Law Enforcement Officer Crisis Intervention Services" telephone hotline established and maintained under the provisions of P.L.1998, c.149 (C.11A:2-25 et al.).

e. Notwithstanding the provisions of subsections a. and b. of this section, \$1 shall be added to the amount of each fine and penalty imposed and collected through a court under authority of any law for any violation of the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation in this State and shall be forwarded by the person to whom the same are paid to the State Treasurer. The State Treasurer shall annually deposit those moneys so forwarded in the "New Jersey Spinal Cord Research Fund" established pursuant to section 9 of P.L.1999, c.201 (C.52:9E-9). In order to comply with the provisions of Article VIII, Section II, paragraph 5 of the State Constitution, a municipal or county agency which forwards moneys to the State Treasurer pursuant to this subsection may retain an amount equal to 2% of the moneys which it collects pursuant to this subsection as compensation for its administrative costs associated with implementing the provisions of this subsection.

f. Notwithstanding the provisions of subsections a. and b. of this section, during the period beginning on the effective date of this act and ending five years thereafter, \$1 shall be added to the amount of each fine and penalty imposed and collected through a court under authority of any law for any violation of the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation in this State and shall be forwarded by the person to whom the same are paid to the State Treasurer. The State Treasurer shall annually deposit those moneys so forwarded in the "Autism Medical Research and Treatment Fund" established pursuant to section 1 of P.L.2003, c.144 (C.30:6D-62.2).

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g. Notwithstanding the provisions of subsection a. and b. of this section, \$2 shall be added to the amount of each fine and penalty imposed and collected by a court under authority of any law for any violation of the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation in this State and shall be forwarded by the person to whom the same are paid to the State Treasurer. The State Treasurer shall annually deposit those moneys so forwarded in the "New Jersey Forensic DNA Laboratory Fund" established pursuant to P.L.2003, c.183. Prior to depositing the moneys into the fund, the State Treasurer shall forward to the Administrative Office of the Courts an amount not to exceed \$475,000 from moneys initially collected pursuant to this subsection to be used exclusively to establish a collection mechanism and to provide funding to update the Automated Traffic System Fund created pursuant to N.J.S.2B:12-30 to implement the provisions of this subsection.

The authority to impose additional fines and penalties under this subsection shall take effect 90 days after the effective date of P.L.2003, c.183 and shall expire five years thereafter. Not later than the 180th day prior to such expiration, the Attorney General shall prepare and submit to the Governor and the Legislature a report on the collection and use of DNA samples under P.L.1994, c.136. The report shall cover the period beginning on that effective date and ending four years thereafter. The report shall indicate separately, for each one-year period during those four years that begins on that effective date or an anniversary thereof, the number of each type of biological sample taken and the total cost of taking that type of sample, and also the number of identifications and exonerations achieved through the use of the samples. In addition, the report shall evaluate the effectiveness, including cost effectiveness, of having the samples available to further police investigations and other forensic purposes.

h. Notwithstanding the provisions of subsections a. and b. of this section, \$1 shall be added to the amount of each fine and penalty imposed and collected under authority of any law for any violation of the provisions of Title 39 of the Revised Statutes or any other motor vehicle or traffic violation in this State and shall be forwarded by the person to whom the same are paid to the State Treasurer. The State Treasurer shall annually deposit those moneys so forwarded in the "New Jersey Brain Injury Research Fund" established pursuant to section 9 of P.L.2003, c.200 (C.52:9EE-9). The Administrative Office of the Courts may retain an amount equal to \$475,000 from the moneys which it initially collects pursuant to this subsection, prior to depositing any moneys in the "New Jersey Brain Injury Research Fund," in order to meet the expenses associated with utilizing the Automated Traffic System Fund created pursuant to N.J.S.2B:12-30 to implement the provisions of this subsection and serve other statutory purposes.

C.52:9EE-10 Regulations.

11. The commission shall adopt regulations pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.) as are necessary to carry out the provisions of this act.

12. This act shall take effect on the 180th day following enactment.

Approved January 2, 2004.

New Jersey Commission on Brain Injury Research

RESEARCH GUIDELINES

APPENDIX B

INTRODUCTION

Approximately 175,000 New Jersey residents suffer from traumatic injuries that damage the brain. Approximately 12,000 new brain injuries occur each year in New Jersey. The economic consequences of the resulting physical disabilities are enormous. Medical and long term care costs to the nation's economy are estimated to be 48 billion dollars annually. The personal toll on individuals and families with brain injuries and their communities is incalculable.

Therefore, in January 2004, Governor James E. McGreevey signed legislation creating the New Jersey Commission on Brain Injury Research (NJCIBIR), allocating funding to the New Jersey Brain Injury Research Fund.

The charge to the NJCIBIR is:

The NJCIBIR will solicit and approve support of research projects, administer the awards through research grants, and promote development of brain injury research projects within the State of New Jersey that focus on treatments and cures. Because the majority of brain injuries within the State are a result of traumatic events, the Commission is particularly interested in funding projects that focus on the treatment and cures of traumatic brain injuries. The NJCIBIR will compile a research directory of all traumatic brain injury research projects being conducted within the State, and provide the Governor and the Legislature with an annual report by January 30th of each year describing the status of the NJCIBIR's activities and the results of its funded research projects.

PROGRAM OBJECTIVES

The NJCIBIR is committed to accelerating research to develop effective interventions and cures for the disabilities associated with traumatic brain injury. Its primary objectives are:

- To advance the field of brain cell repair and regeneration in the New Jersey research community by encouraging established scientists to apply their expertise to the brain.
- To foster collaborative, interdisciplinary approaches to brain injury research.
- To develop models of neural repair and regeneration that establishes a basis for additional scientific investigation.

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- To develop models of neural repair and regeneration after brain injury that can lead to clinical interventions
- To promote dissemination of the research findings generated by those scientists supported by the NJCBIR.

NJCBIR awards are intended to promote collaboration among brain injury researchers in New Jersey and encourage innovative research, not to provide long-term support. Grantees are eligible to apply for funding for additional research projects; all applications will be reviewed competitively.

FUNDING PRIORITIES

The New Jersey Commission on Brain Injury Research will fund research activities that hold promise of developing effective interventions and cures for the disabilities associated with traumatic brain injury. The areas of research listed below highlight the focus of current NJCBIR emphasis and funding:

- Studying strategies to promote neuronal growth and survival, encourage the formation of synapses, enhance appropriate myelination, restore axonal conduction, replace or regenerate injured brain cells, or otherwise improve function after brain injury.
- Evaluating efficacy of drugs and other interventions that prevent or reduce secondary neuronal injury or providing insight into the mechanisms causing progressive damage.
- Defining anatomical characteristics of brain injury in well-defined animal models and in the human brain, specifically documenting the cellular systems vulnerable to injury and the functional losses which occur as a result thereof.
- Translational research on the mechanism and interventions that promote recovery of function after brain injury.
- Demonstrating the efficacy of innovative rehabilitation strategies based on basic research that offers promise to promote recovery of function through their clinical application.

ELIGIBILITY

Qualifying Institutions: For the purpose of all NJCBIR grants, a qualifying institution is defined as any academic institution, research organization, public or private institution or other entity, located in the State of New Jersey, with a demonstrated capability to conduct grant funded research, and specifically approved by the vote of the Commission, but in no event can an individual be a qualifying institution. All applicants, organizations/institutions must be located within the State of New Jersey.

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**PROTECTION OF HUMAN SUBJECT, ANIMAL WELFARE,
AND RECOMBINANT DNA**

Compliance with National Institutes of Health regulations for the protection of human subjects, animal welfare and recombinant DNA is required for all grants. Inclusion of women and minorities in clinical trials is a target objective for all grants.

a. NJCBIR supports compliance with NIH regulations, OHRP and institutional guidelines defined for the protection of human subjects in research. Violations of these regulations and guidelines must be reported and reviewed by the appropriate institutions and NJCBIR, including but not limited to OHRP, the IRB overseeing the research, the associated institution and the laboratory's senior scientist.

b. NJCBIR shall have the right to arrange for observation and/or auditing w/o prior notice of any research activity and research records associated with research funded by NJCBIR.

It is the responsibility of the applicant as a potential recipient of a NJCBIR grant to assure that the rights and welfare of all human subjects used in any NJCBIR sponsored research are protected. Any applications involving human subjects must be reviewed and approved by the appropriate institutional review board.

It is the responsibility of the applicant as a potential recipient of a NJCBIR grant to assure proper care and treatment of all laboratory animals used in any NJCBIR sponsored research. Any applications involving laboratory animals must be reviewed and approved by the appropriate institutional review board.

It is the responsibility of the applicant as a potential recipient of a NJCBIR grant to assure that the physical and biological containment needed for research involving any recombinant DNA molecules is within policies set out in the current "National Institutes of Health Guidelines for Research Involving Recombinant DNA Molecules." Any applications involving recombinant DNA molecules must be reviewed and approved by the appropriate institutional review board.

RESEARCH GRANTS AVAILABLE

Individual Research Grant

The NJCBIR will fund Individual Research Grants with an emphasis on (1) strategies to promote neuronal repair and regeneration after traumatic brain injury, or (2) translational

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research that establishes the relevance of basic research findings to clinical application in human subjects. Applicants are encouraged to apply for a one-year or two-year award.

Maximum funding is up to \$150,000 per year including direct and indirect costs (10% maximum for the latter).

The goals of this program are (1) to encourage investigators to undertake research on neural protection, repair and regeneration after traumatic brain injury; (2) to encourage scientists with established research programs in related areas to apply their efforts to brain injury research; and (3) to enable researchers with novel scientific and clinical ideas to test them and develop pilot data needed to develop a programmatic area of research that can be supported by additional funding from the National Institutes of Health, and other funding sources.

Programmatic Multi-Investigator Project Grants

The NJCBIR will fund programmatic project grants that support collaborative research from at least 4 investigators from different laboratories with an emphasis on traumatic brain injury. Preference will be given to proposals that demonstrate complimentary approaches to addressing a research question through multidisciplinary investigations (e.g., molecular, genetic, physiologic and pharmacologic approaches).

Collaborations are encouraged among independent laboratories within the same institution, or among laboratories from different institutions. The principal investigator must be located within a qualifying institution in the State of New Jersey. Proposals must identify a principal investigator within each research site as well as an overall Principal Investigator who is responsible for ensuring collaboration among all investigators. Applicants are encouraged to apply for a one-year or two-year award. Maximum funding is up to \$1,000,000 per year including direct and indirect costs (10% maximum for the latter).

Maximum funding available for all grant categories in the 2006 grant cycle shall not exceed \$4.2 million dollars.

For both the Individual Research Grants and Multi-Investigator Project Grants the Principal Investigators must be affiliated with a New Jersey State academic institution, research organization, public or private agency or other entity with demonstrated capability to conduct research responsibly. The principal investigator will hold an M.D., Ph.D. or equivalent advanced degree in a related scientific field. Unaffiliated individuals will not be funded. Individuals of any nationality or citizenship status may apply, provided they are employed by or affiliated with a qualified New Jersey State organization/institution.

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Awards will begin on or about (TBD). All qualifying institutions in the State of New Jersey may apply. Two-year awards are made through one-year contracts. Each funding award within the two-year period will be contingent upon the availability of funds. Second-year support for all grants is contingent upon submission and approval of a comprehensive progress report. All progress reports must be favorably reviewed by an independent scientific merit review panel and recommended to the NJCBIR for continued funding. A final progress report is required for all 1 and 2 year awards within 3 months after termination of the grant. All forms are available at www.nj.gov/health/njcbir.

Scientists supported by the NJCBIR are expected to report on their work at a symposium organized by the NJCBIR. Grantees will acknowledge the support of the New Jersey Commission on Brain Injury Research in all presentations and publications.

REVIEW PROCESS

All research proposals will be reviewed in accordance with the Grant Review Process set forth herein.

All grant applications must be submitted following the guidelines below. Grant applications that do not adhere to these guidelines will be returned to the applicant without further consideration. Grant applications sent by fax or e-mail will NOT be accepted.

The deadline for all grant applications to be received at the NJCBIR office is 5:00PM on (TBD). No exceptions will be made.

All necessary and required grant application forms, progress reports, narrative reports, final narrative reports, policies, research guidelines, and other additional information can be viewed and downloaded from the NJCBIR website at www.nj.gov/health/njcbir.

Documents can also be obtained by sending a written request to the NJCBIR office at:

New Jersey Commission on Brain Injury Research
P.O. Box 360
Market and Warren Streets
Trenton, New Jersey 08625

LETTER OF INTENT

A one-page letter of intent is highly recommended for all grant applications. **Letters of intent must be filed with the NJCBIR office by NEED DATE.**

PROPOSAL SUBMISSION

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For all grant categories, one original (signed), and 25 additional copies of grant applications, plus 5 sets of reprints, appendices, and any attachments, must be sent to and received by the NJCBIR office no later than 5:00PM, NEED DATE. Applicants must supply additional copies of appendices upon request. No grant applications will be accepted past this stated deadline.

Please use this address for all overnight mail deliveries (FedEx, UPS, USPS, Express Mail, etc.):

New Jersey Commission on Brain Injury Research
Health and Agriculture Building
Warren & Market Streets
5th Floor, Room 502
Trenton, New Jersey 08625

Please use this address for all regular U.S. mail deliveries:

New Jersey Commission on Brain Injury Research
P.O. Box 360
Health & Agriculture Building
Warren and Market Streets
Trenton, New Jersey 08625

GRANT REVIEW PROCESS

For all grant categories, the determination of grant awards will be made through a three-step review process:

1. **Administrative Review** (NJCBIR office):

Upon receipt, all grant applications will be reviewed by the NJCBIR office for compliance with all applicable New Jersey State statutes and regulations, and to ensure completeness, and accuracy. In the event a grant application needs correction due to a budgetary issue, the applicant will be contacted to provide a revised budget.

2. **Independent Relevance Review** (Independent Relevance Review Panel):

Independent relevance review will be conducted by a three-person panel appointed by the office of the NJCBIR. The Independent Relevance Review Panel will determine the relevance of all applications to the NJCBIR mission, priorities and Research Guidelines and will assign scientific reviewers for each proposal that meets those relevancy requirements. In the event the Independent Relevance Review Panel determines that an application does not meet those relevancy requirements, the application will be denied, and will not be forwarded for independent scientific merit review.

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The decision to forward an application for independent scientific merit review is based only on relevance to the NJCBIR mission, priorities, and research guidelines, and does not guarantee that an award will be made.

3. **Scientific Merit Review** (Independent Scientific Merit Review Panel):
Members of the Independent Scientific Merit Review Panel will convene to evaluate all grant applications forwarded by the Independent Relevance Review Panel, applying the criteria described below. This panel will assign scores to each application and make funding recommendations to the NJCBIR.

If it is determined that *ad hoc* expertise is needed, additional scientific referees may be used.

The Independent Scientific Merit Review Panel will forward its recommendations to the NJCBIR for final review and action. The authority to authorize or not authorize grants is fully vested in the NJCBIR according to New Jersey statute N.J.S.A. 52:9E-1-10.

CRITERIA FOR INDEPENDENT SCIENTIFIC REVIEW

Grant applications will be judged on scientific and technical merit, relevance to the NJCBIR's mission and priorities, clinical relevance, and interdisciplinary collaborations.

The independent scientific reviewers will perform two levels of review:

1. Each panel member will peer review his/her assigned proposals for scientific and technical merit and significance, and determine an initial score for each proposal.
2. The panel will then convene for group discussion, final scoring, and ranking of all proposals; the panel will also recommend a cut-off point for funding.

The following topics will be addressed during the review process:

- Is the research proposal of significance to the field of brain injury research?
- Is the proposed research innovative, including novel concepts, approaches, and/or methods?
- Is the research proposal relevant to NJCBIR priorities?
- Is the research proposal original in theory and application?
- Does prior research and theory provide a rational basis for the proposed research?
- Is the proposed project adequate in terms of experimental design and analyses, anticipation of potential problems, and consideration of alternative approaches?

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- Does the design have adequate methodological quality and power to increase the likelihood of producing statistically sound conclusions?
- Does the researcher have access to appropriate facilities, equipment, expertise, and research environment either in-house and/or with collaborators or consultants?
- Does the design include interdisciplinary collaborations, and if so, is the proposed combination of disciplines both novel and likely to generate meaningful results?
- Are the qualifications, productivity, and time commitments of principal investigator and key staff commensurate with the proposed project?
- If a human model is proposed, is the availability of subjects adequate and system of education and protection of subjects appropriate?
- Is there evidence of compliance with National Institutes of Health regulations for the protection of animal welfare?
- Is the budget reasonable and justified for the project proposed? Is there evidence of institutional commitment and/or cost sharing in the proposal?
- Are there other factors both pro and con that may affect the ability of the applicant to successfully complete the research goals?
- Will the project make an original and important contribution to the field of brain injury research and more specifically, to the mission of the NJCBIR?

RESULTS NOTIFICATION

All applicants including Principal Investigators and organizations/institutions will be formally notified of the outcome of his/her application at the conclusion of the selection process at a date to be determined later. At that time, formal notification will be made to the institutions of successful applicants and contracts will be initiated shortly thereafter by the NJCBIR.

Blinded reviews will be provided to both funded and non-funded applicants; no further information shall be provided.

Non-funded applicants also will be notified. There is no appeal process. All non-funded applicants in any given grant cycle are eligible to revise their applications based on reviewer feedback and reapply, one time only, through the reapplication process. All reapplications will be reviewed as new competing proposals.

ANTICIPATED RESULTS

The goal of the NJCBIR is to assume a catalytic role in the worldwide movement to develop effective methods of brain cell regeneration as a means to cure brain injury.

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Through the judicious use of funds raised through violations under Title 39 of the Revised Statute, or any other motor vehicle, or traffic violation in the State of New Jersey, the NJCBIR will encourage and support meritorious scientific research in the State of New Jersey in fulfillment of that goal. This will benefit the State of New Jersey in savings on medical and support costs, enhance the development of the State's public and private biomedical sector, establish leadership in the field of brain cell repair, and most importantly, help develop effective interventions and cures for the disabilities associated with brain injury.

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APPENDIX C

2006 MEMBERSHIP INFORMATION

Meiling Chin, MBA, Vice Chairperson Madison, NJ Public	May 12, 2006
Keith Cicerone, Ph.D., Chairperson Howell, NJ Public	December 13, 2006
Emanuel DiCicco-Bloom, M.D. Princeton Junction, NJ Public/New Jersey Senate President	September 26, 2008
Karl Herrup, Ph.D. Piscataway, NJ Representing Rutgers, The State University	Indefinite
Cynthia Kirchner, M.P.H. Ex-Officio Representing the Commissioner of the New Jersey Department of Health and Senior Services	Indefinite
John LoCurto, M.D. Park Ridge, NJ Public	September 26, 2008
Benjamin Natelson, M.D. Jefferson Township, NJ Representing the University of Medicine and Dentistry of New Jersey	Indefinite
Ed Sullivan Piscataway, New Jersey Public	November 15, 2006

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Dennie Todd Medford, New Jersey Public/Brain Injury	November 15, 2005
VACANT- Public Member/Licensed Physician	
Richard Burns- Public/ Speaker of the General Assembly Wynnewood, Pennsylvania	March 1, 2008

APPENDIX D

New Jersey Traumatic Brain Injury Surveillance System

Traumatic Brain Injury in New Jersey, 2002

The following update on Traumatic Brain Injury (TBI) in New Jersey comes from the New Jersey TBI Surveillance System, which captures inpatient hospitalizations and deaths from TBI in New Jersey. This update covers 2002 fatality data and hospitalization data for 2004, the most recent year available. For more information on the New Jersey TBI Surveillance System, please refer to the Technical Notes at the end of this Report.

Annually, more than 8,000 traumatic brain injuries (TBI) resulting in inpatient hospitalization or death occur to New Jersey residents. Rates of TBI are higher among men and those aged 65 years and over. Approximately, 15 percent of TBIs are fatal.

Major causes of TBI are motor vehicle crashes, falls and assaults. [Table 1] The age pattern is largely shaped by trends in these events over the life cycle. Age-specific TBI rates rise somewhat between ages 15-24 years, then rise sharply at ages over 65 years. [Figure 1] The rise in TBI rates among young adults is primarily due to a temporary increase in unintentional motor vehicle traffic injuries and violence. This age pattern is also demonstrated in comparing TBI rates by race [Figure 2]. However, the age specific rates of whites, in particular, rise dramatically after age 65. TBIs among older persons are primarily due to the rising likelihood of falls. [Figure 3]

TBI rates are higher among males for all major causes of TBI. In fact, the rate of TBIs for males is nearly twice as high as that of females for motor vehicle injuries and falls. [Figure 4] In the case of assaults and self-injury, the male-female ratio is higher. Whites have the highest rates for motor vehicle traffic injuries and self-injury, while the rates for assaults are highest among African Americans. [Figure 5]

Overall, 14 percent of TBI is fatal. The percent fatal is highest in the case of self-injury. [Figure 6] and the overall percent fatal rises with age [Figure 7].

The age-adjusted rate of hospitalizations for TBI increased between 2002 and 2004. [Figure 8] As seen in Table 2, more than two thirds of all TBI inpatients were discharged to home. The proportion being discharged to rehabilitation is clearly highest in the case

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of falls. Overall, approximately twenty one percent of TBI admissions were discharged to rehabilitation.

Among all traumatic brain injury hospitalizations in 2004, less than six percent were fatal (these figures exclude those who die before hospitalization). Approximately 21 percent of TBI inpatients were transferred from the hospital to a rehabilitation facility.

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Table 1. Age-adjusted TBI Rates by Cause, Gender, Race and Severity, New Jersey, 2002

	Age-Adjusted Rate *
All TBIs	95.3 ¹
Mechanism	
Motor Vehicle	35.4
Fall	36.7
Assault	8.9
Self-injury	2.3
Gender	
Female	62.6
Male	129.6
Race	
White	75.2
African American	100.6
Severity²	
Mild/Moderate	79.5 ³
Severe	20.5 ³
Fatal	14.0 ³

Notes: *Age-Adjusted per 100,000 U.S. 2000 standard pop.

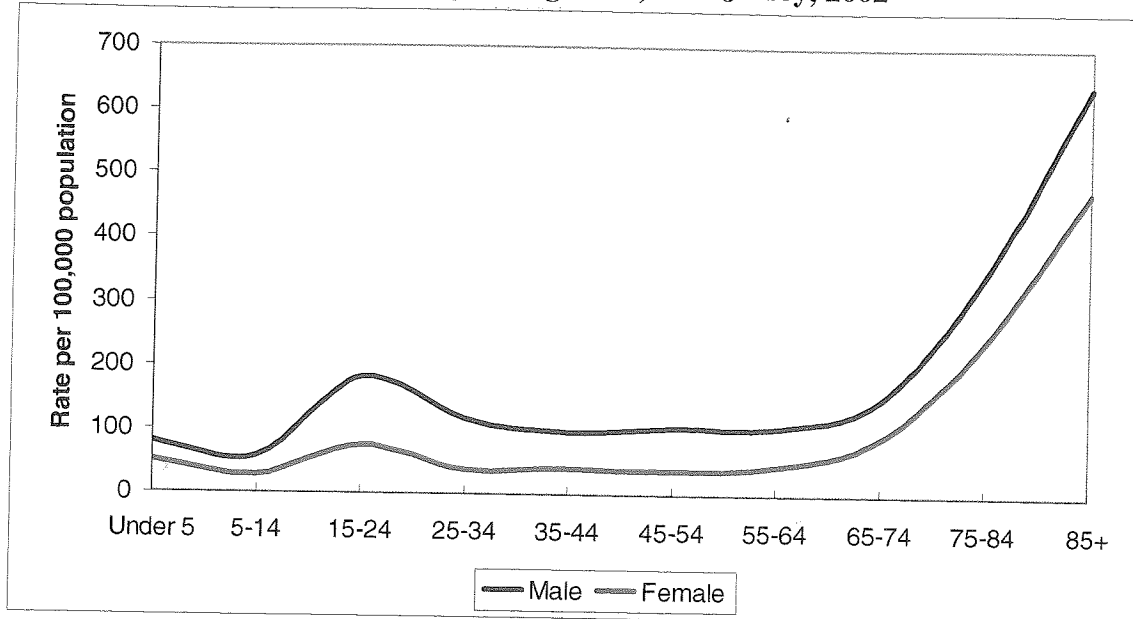
¹Crude Rate per 100,000 pop.

² Figures estimated from a randomly drawn sample of hospital charts that includes 1236 TBI hospitalizations from NJ acute care hospitals and 621 out-of-hospital TBI deaths to NJ residents which occurred during the period Jan 1, 2001 to December 31, 2002. Severity is ascertained based on the Abbreviated Injury Scale (AIS) score for the head region. Severity is not estimated for TBI fatalities because of comparability issues.

³Rates were not calculated – figures represent percentages. Note fatalities include Mild/Moderate and Severe TBIs

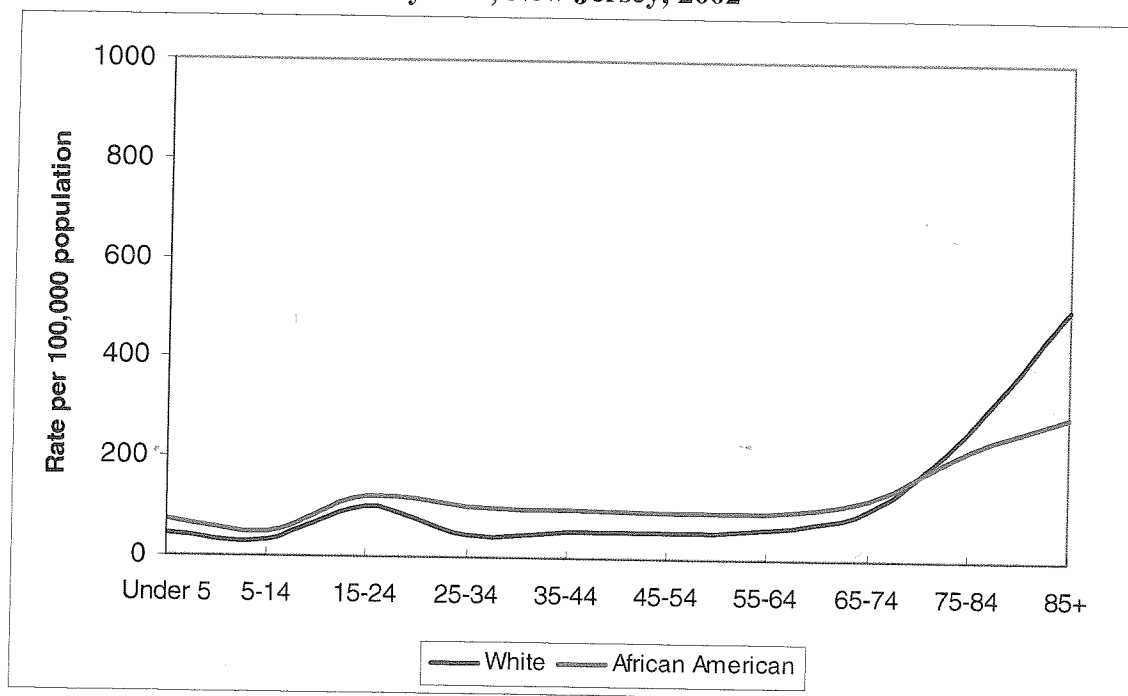
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Figure 1. Crude TBI rates by age and gender, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data.

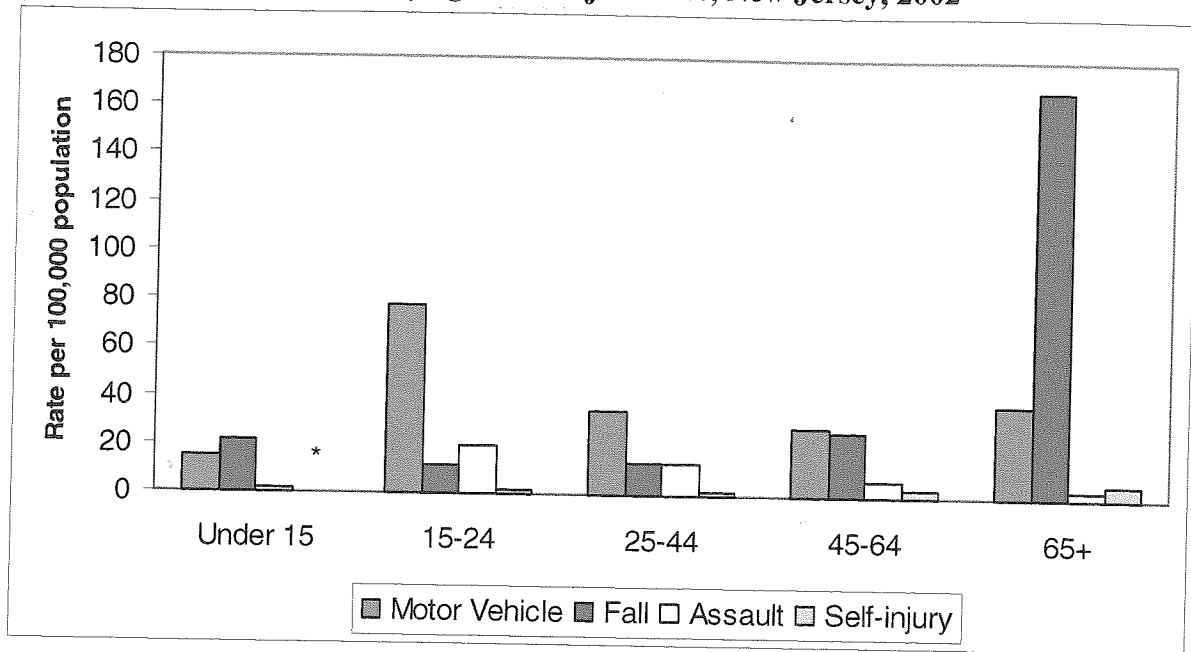
Figure 2. Crude TBI rates by race, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data.

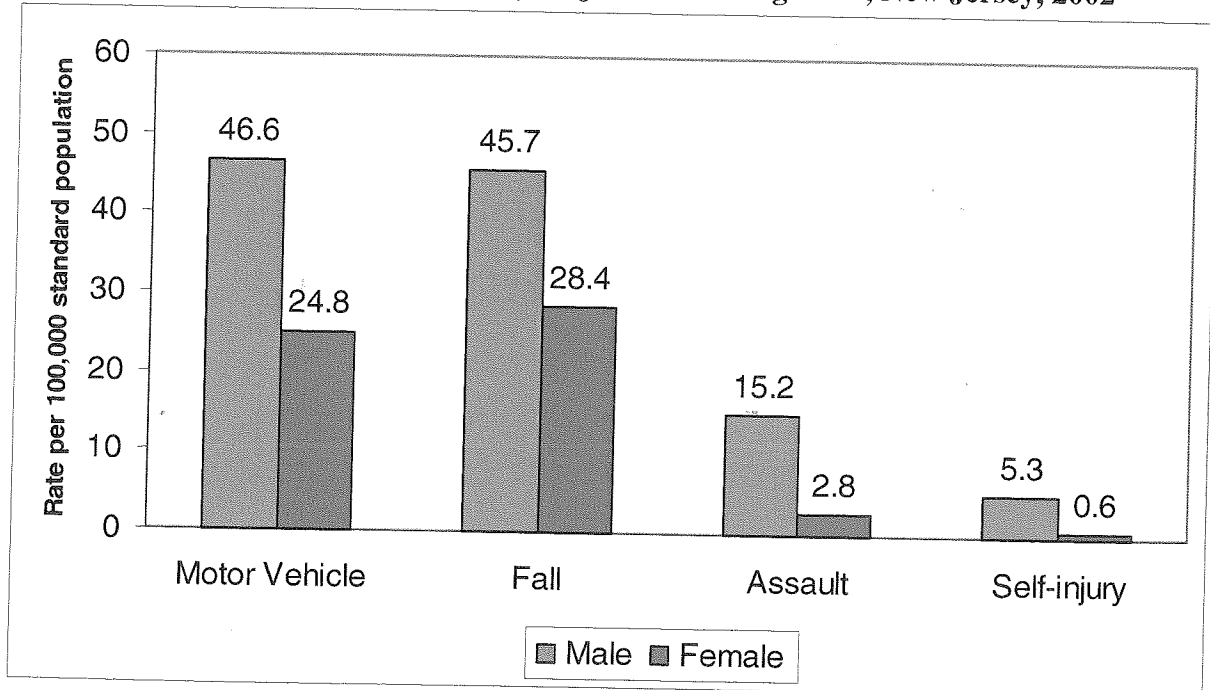
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Figure 3. Crude TBI rates by age and major cause, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data.

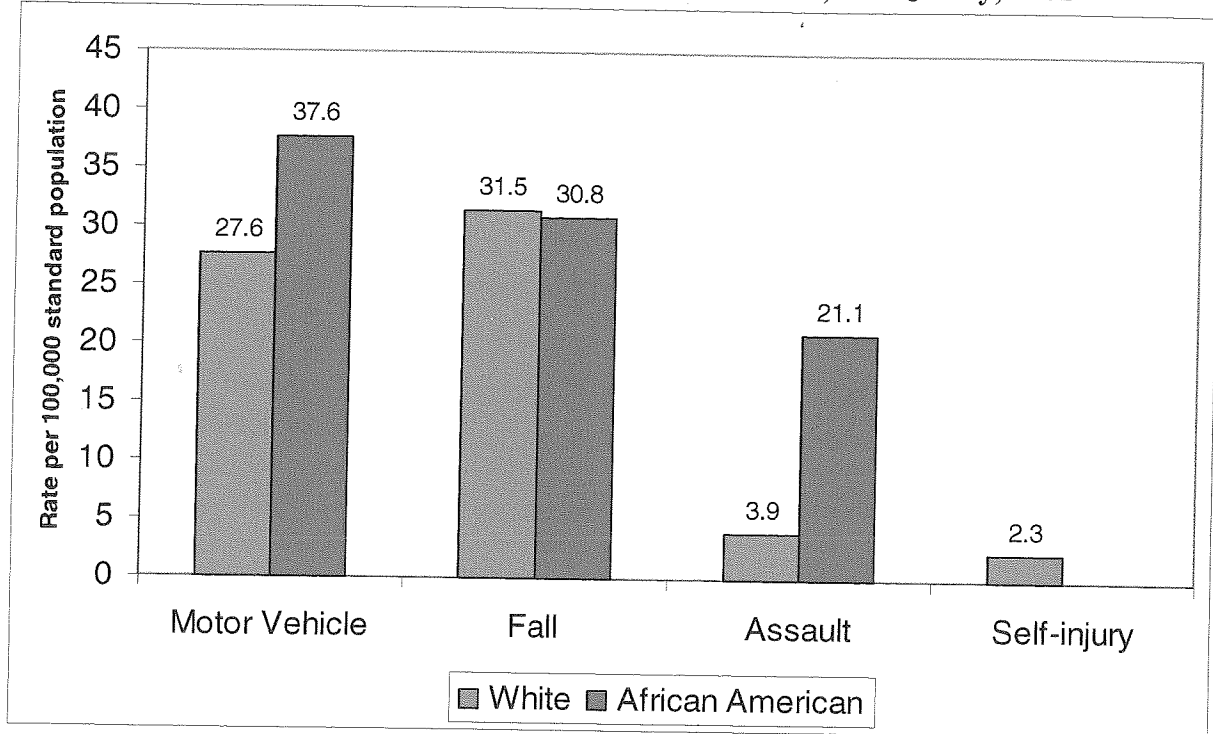
Figure 4. Age-Adjusted TBI rates by major cause and gender, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data. Denominators used in the rates are the US Census Bridged Population estimates for 2002. Rates are age-adjusted and are computed per 100,000 gender-specific population based on the 2000 US standard million population.

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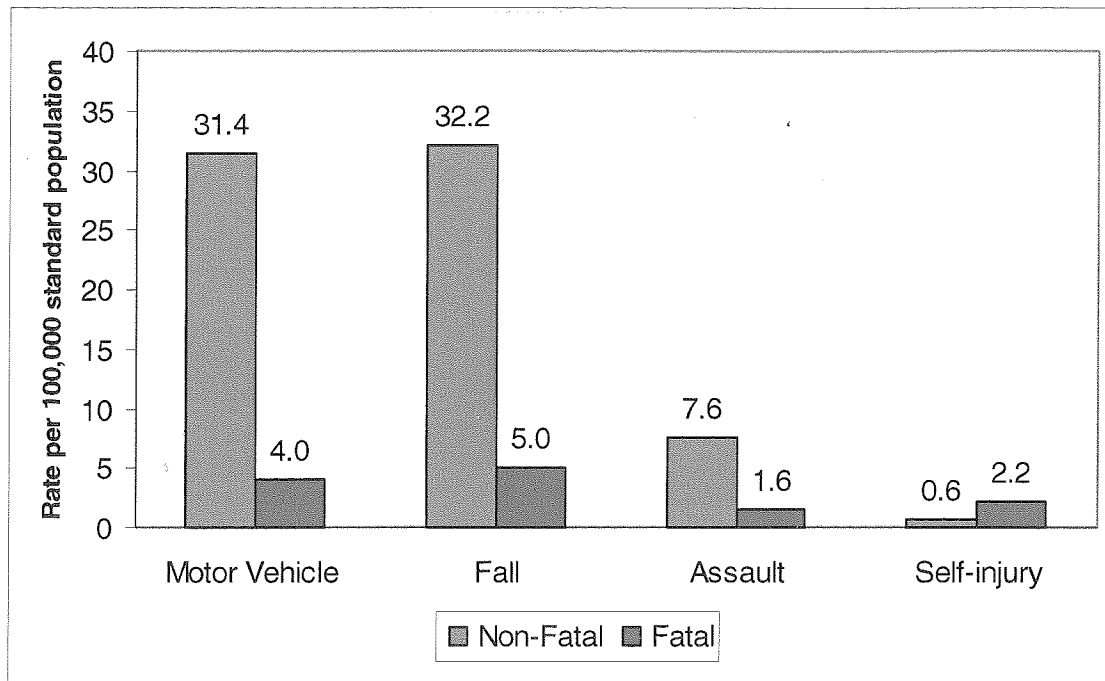
Figure 5. Age-adjusted TBI rates by major cause and race, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data. Denominators used in the rates are the US Census Bridged Population Estimates for 2002. Rates are age-adjusted and are computed per 100,000 gender-specific population based on the 2000 US standard million population. Self-injuries for African Americans were too few to calculate reliable rates.

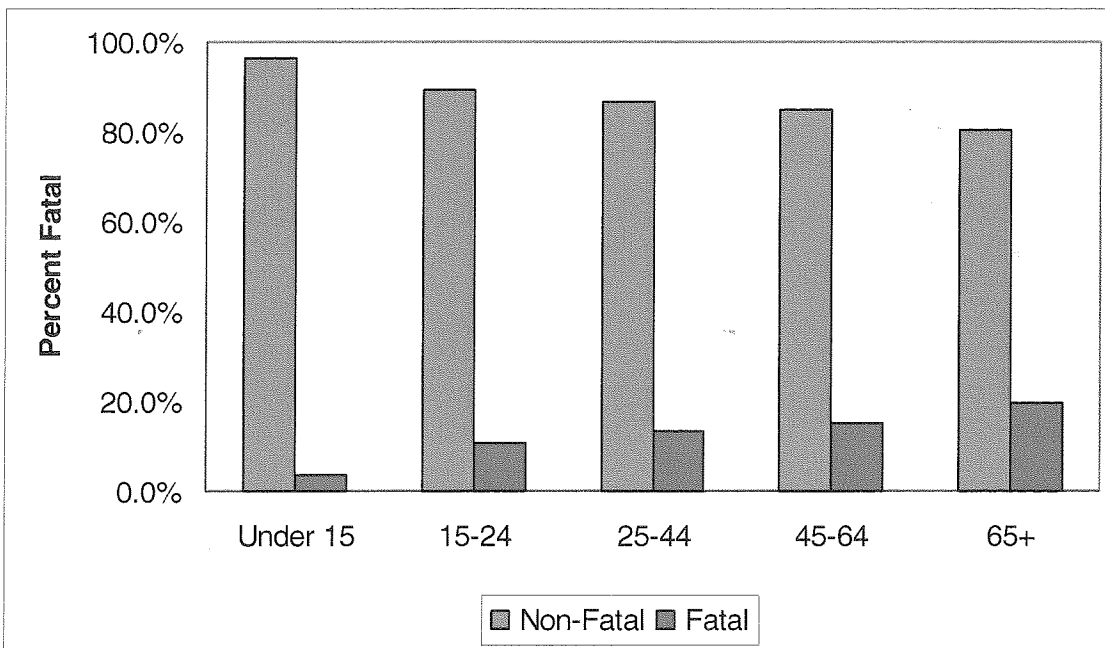
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Figure 6. Age-adjusted TBI rates by major cause and mortality, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data.

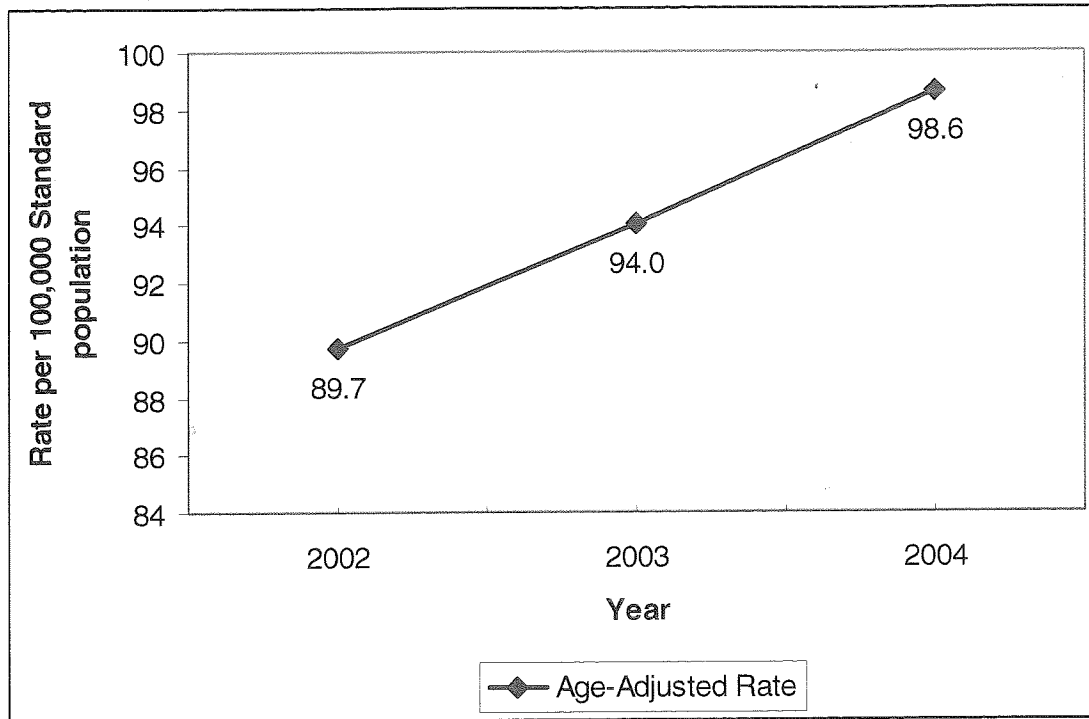
Figure 7. Traumatic brain injury rates by age and mortality, New Jersey, 2002



Source: 2002 TBI Surveillance sample data which include in-state hospitalizations only and excludes out of state residents. All occurrences of TBI deaths to NJ residents are also included in the surveillance data.

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Figure 8. Age-adjusted traumatic brain hospitalization rates, New Jersey, 2002-2004



Source: UB-92 Annual Hospital Discharge Files. Data include all TBI hospitalizations for NJ residents.

Table 2. Discharge Disposition of TBI Hospitalizations by major cause, New Jersey, 2004

Cause	Discharge Disposition				TOTAL
	Home ¹	Extended Inpatient Care ²	Rehab ³	Died	
Motor Vehicle	2010	108	424	117	2659
(%)	75.6	4.1	15.9	4.4	100.0
Fall	2277	165	1155	301	3898
(%)	58.4	4.2	29.6	7.7	100.0
Assault	685	32	44	26	787
(%)	87.0	4.1	5.6	3.3	100.0
Self-injury	15	11	5	6	37
(%)	40.5	29.7	13.5	16.2	100.0
Other/Unknown	1031	64	168	44	1307
(%)	78.9	4.9	12.8	3.4	100.0
TOTAL	6018	380	1796	494	8688
(%)	69.3	4.37	20.7	5.7	100.0

Source: UB-92 Annual Hospital Discharge Files. Data include all TBI hospitalizations for NJ residents.

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Notes: ¹Includes: Discharges/transfers to home and/or home care and patients who left AMA

²Includes: Discharges/transfers to other private or Federal general hospitals, and long-term acute care

³Includes: Discharges/transfers to hospital-based or freestanding inpatient rehabilitation and SNFs

Technical Notes

TBI Case Definition and Methodology

Traumatic Brain Injury surveillance data in New Jersey consists of unduplicated hospitalizations and out-of hospital deaths with a diagnosis of TBI in the hospital discharge data or the death certificate. TBIs resulting in visits to emergency departments, outpatient clinics, or physicians' offices with no inpatient hospitalization are excluded. The system also excludes hospitalizations for TBI occurring to New Jersey residents while out of state. The surveillance system excludes hospitalizations and deaths occurring to out of state residents while in New Jersey.

TBI Clinical Case Definition:

An occurrence of injury to the head that is documented in a medical record, with one or more of the following conditions attributed to head injury: observed or self-reported decreased level of consciousness, amnesia, skull fracture, objective neurological or neuropsychological abnormality, diagnosed intracranial lesion OR an occurrence of death resulting from trauma, with head injury listed on the death certificate, autopsy report or medical examiner's report in the sequence of conditions that resulted in death.

Hospitalizations with TBI are defined by the following ICD-9-CM codes:

800.0 – 801.9	Fracture of the vault or base of the skull
803.0 – 804.9	Other and unqualified and multiple fractures of the skull
850.0 – 854.1	Intracranial injury, including concussion, contusion, laceration, and hemorrhage
950.1 – 950.3	Injury to the optic chiasm, optic pathways; and visual cortex
959.01	Head injury, unspecified
995.55	Shaken Infant Syndrome

Deaths from TBI are defined by the following ICD-10 codes.

S01.0 – S01.9	Open wound of the head
S02.0, S02.1, S02.3	Fracture of skull and facial bones
S02.7 – S02.9	
S04.0	Injury to optic nerve and pathways
S06.0 – S06.9	Intracranial injury
S07.0, S07.1, S07.8	Crushing injury of head
S07.9	
S09.7 – S09.9	Other and unspecified injuries of head

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T01.0	Open wound involving head with neck
T02.0	Fractures involving head with neck
T04.0	Crushing injuries involving head with neck
T06.0	Injuries of brain and cranial nerve with injuries of nerves and spinal cord at neck level
T90.1, T90.2, T90.4	Sequelae of injuries of head
T90.5, T90.8 T90.9	