CHAPTER 15. PUBLIC SAFETY.
ARTICLE 2C. CENTRAL ABUSE REGISTRY.

§15-2C-1. Definitions.
The following words when used in this article have meanings ascribed to them in this section, except in those instances where the context clearly indicates a different meaning:

(a) "Central abuse registry" or "registry" means the registry created by this article which shall contain the names of individuals who have been convicted of a felony or a misdemeanor offense constituting abuse, neglect or misappropriation of the property of a child or an incapacitated adult or an adult receiving behavioral health services.

(b) "Child abuse and neglect" or "child abuse or neglect" means those terms as defined in section three, article one, chapter forty-nine of this code, and shall include any act with respect to a child which is a crime against the person pursuant to article two, chapter sixty-one of this code, any act which is unlawful pursuant to article eight-d of said chapter sixty-one, and any offense with respect to a child which is enumerated in section three of this article.

(c) "Abuse or neglect of an incapacitated adult" means "abuse," "neglect" and "incapacitated adult" as those terms are defined in section one, article six, chapter nine, and shall include any act with respect to an incapacitated adult which is a crime against the person pursuant to article two, chapter sixty-one of this code, and any offense with respect to an incapacitated adult which is enumerated in section three of this article.

(d) "Adult receiving behavioral health services" means a person over the age of eighteen years who is receiving any behavioral health service from a licensed behavioral health provider or any behavioral health provider whose services are paid for, in whole or in part, by medicaid or medicare.

(e) "Conviction" of a felony or a misdemeanor means an adjudication of guilt by a court or jury following a hearing on the merits, or entry of a plea of guilty or nolo contendere.

(f) "Residential care facility" means any facility where a child or an incapacitated adult or an adult receiving behavioral health services resides which is subject to registration, licensure or certification by the Department of Health and Human Resources, and shall include nursing homes, personal care homes, residential board and care homes, adult family care homes, group homes, legally unlicensed service providers, residential child care facilities, family based foster care homes, specialized family care homes and intermediate care facilities for the mentally retarded.

(g) "Misappropriation of property" means any act which is a crime against property under article three, chapter sixty-one of this code with respect to a child in a residential care facility.
or an incapacitated adult or an adult receiving behavioral health services in a residential care facility or a child or an incapacitated adult or an adult receiving behavioral health services who is a recipient of home care services.

(h) "Home care" or "home care services" means services provided to children or incapacitated adults or adults receiving behavioral health services in the home through a hospice provider, a community care provider, a home health agency, through the medicaid waiver program, or through any person when that service is reimbursable under the state medicaid program.

(i) "Requester" means the West Virginia Department of Education, any residential care facility, any state licensed day care center, any qualified entity as defined in this section or any provider of home care services or an adult receiving behavioral health services providing to the Central Abuse Registry the name of an individual and other information necessary to identify that individual, and either: (1) Certifying that the individual is being considered for employment or service as a volunteer by the requester or for a contractual relationship with the requester wherein the individual will provide services to a child or an incapacitated adult or an adult receiving behavioral health services for compensation; or contractors and vendors who have or may have unsupervised access to the child, disabled or elderly person for whom the qualified entity provides care; or (2) certifying that an allegation of abuse, neglect or misappropriation of property has been made against the individual.

(j) "Qualified entity" means any business, agency or organization that provides care, treatment, education, training, instruction, supervision or recreation for children, the elderly or individuals with disabilities and is a public, private or not-for-profit entity within the State of West Virginia and meets the definition of qualified entity under the federal National Child Protection Act of 1993; P.L. 103-209 as amended by the Volunteers for Children Act; P.L. 105-251.

§15-2C-2. Central Abuse Registry; required information; procedures.
(a) The Criminal Identification Bureau of the West Virginia State Police shall establish a Central Abuse Registry, to contain information relating to criminal convictions involving child abuse or neglect, abuse or neglect of an incapacitated adult or an adult receiving behavioral health services and misappropriation of property by individuals specified in subsection (b) of this section and information relating to individuals required to be registered as a sex offender.

(b) The Central Abuse Registry shall contain, at a minimum, information relating to: Convictions of a misdemeanor or a felony involving abuse, neglect or misappropriation of property, by an individual performing services for compensation, within the scope of the individual's employment or contract to provide services, in a residential care facility, in a
licensed day care center in connection with providing behavioral health services, or in connection with the provision of home care services; information relating to individuals convicted of specific offenses enumerated in subsection (a), section three of this article with respect to a child or an incapacitated adult or an adult receiving behavioral health services; information relating to all individuals required to register with the Child Abuse and Neglect Registry established pursuant to article thirteen, chapter fifteen of this code; and information relating to all individuals required to register with the West Virginia State Police as sex offenders pursuant to the provisions of article twelve, chapter fifteen of this code. The Central Abuse Registry shall contain the following information:

(1) The individual's full name;

(2) Sufficient information to identify the individual, including date of birth, social security number and fingerprints if available;

(3) Identification of the criminal offense constituting abuse, neglect or misappropriation of property of a child or an incapacitated adult or an adult receiving behavioral health services;

(4) For cases involving abuse, neglect or misappropriation of property of a child or an incapacitated adult or an adult receiving behavioral health services in a residential care facility or a day care center, or of a child or an incapacitated adult or an adult receiving behavioral health services receiving home care services, sufficient information to identify the location where the documentation of any investigation by the Department of Health and Human Resources is on file and the location of pertinent court files; and

(5) Any statement by the individual disputing the conviction, if he or she chooses to make and file one.

(c) Upon conviction in the criminal courts of this state of a misdemeanor or a felony offense constituting child abuse or neglect or abuse or neglect of an incapacitated adult or an adult receiving behavioral health services, the individual so convicted shall be placed on the Central Abuse Registry.

§15-2C-3. Reports of certain convictions by prosecuting attorneys.
(a) The central abuse registry shall maintain information relating to child abuse or neglect, abuse or neglect of an incapacitated adult or adult receiving behavioral health services, and misappropriation of property with respect to individuals convicted of certain offenses pursuant to this code, when the victim of the crime is a child or an incapacitated adult or an adult receiving behavioral health services, to include:

(1) First or second degree murder pursuant to section one, article two, chapter sixty-one of this code;
(2) Voluntary manslaughter pursuant to section four, article two, chapter sixty-one of this code;

(3) Attempt to kill or injure by poison pursuant to section seven, article two, chapter sixty-one of this code;

(4) Malicious or unlawful assault pursuant to section nine, article two, chapter sixty-one of this code;

(5) Assault during commission of or attempt to commit a felony pursuant to section ten, article two, chapter sixty-one of this code;

(6) Extortion by threats pursuant to section thirteen, article two, chapter sixty-one of this code;

(7) Abduction of a person or kidnapping or concealing a child pursuant to section fourteen, article two, chapter sixty-one of this code;

(8) Enticing away or otherwise kidnapping any person pursuant to section fourteen-a, article two, chapter sixty-one of this code;

(9) A misdemeanor or felony sexual offense pursuant to article eight-b, chapter sixty-one of this code;

(10) Filming of sexually explicit conduct of minors pursuant to article eight-c, chapter sixty-one of this code;

(11) Misdemeanor or felony child abuse pursuant to article eight-d, chapter sixty-one of this code;

(12) A violent crime against the elderly which is an offense under the provisions of section nine or ten, article two, chapter sixty-one of this code which is subject to the sentencing provisions of section ten-a of said article two; or

(13) A property offense pursuant to article three, chapter sixty-one of this code, with respect to a child in a residential care facility or an incapacitated adult or an adult receiving behavioral health services in a residential care facility or a child or an incapacitated adult or an adult receiving behavioral health services who is a recipient of home care services, when the individual committing the offense was providing services for compensation in the residential care facility or within the home.

(b) The prosecuting attorneys in each of the fifty-five counties within the state, upon conviction of a misdemeanor, a felony or a lesser included misdemeanor offense for those specific offenses set forth in subsection (a) of this section, shall report the conviction to the
central abuse registry, together with additional information, provided in a form, as may be required by the criminal identification bureau for registry purposes. Reporting procedures shall be developed by the criminal identification bureau in conjunction with the prosecuting attorneys’ institute and the office of the administrator of the supreme court of appeals.

(c) Information relating to convictions prior to the effective date of this section of a misdemeanor or a felony constituting child abuse or abuse or neglect of an incapacitated adult receiving behavioral health services shall, to the extent which is feasible and practicable, be placed on the central abuse registry. When any requester requests information related to a named individual, the criminal identification bureau may search and release other information maintained by the bureau to determine whether that individual has been convicted of offenses which are subject to inclusion on the registry.


(a) The information contained in the central abuse registry is confidential, and may not be disclosed except as specifically provided in this section. The criminal identification bureau shall disclose the information described in subdivisions (1) through (3) and subdivision (5), subsection (b), section two of this article to any requester, except that the name of the victim of the act alleged shall not appear on the information disclosed and shall be stricken from any statement filed by an individual. The department of health and human resources shall certify, not later than fifteen days following the effective date of this section, the list of requesters authorized to obtain registry information, and shall inform the criminal identification bureau promptly of subsequent additions and deletions from the list. The information contained in the registry with respect to an individual shall be provided to that individual promptly upon request. Individuals on the registry requesting registry information shall be afforded the opportunity to file statements correcting any misstatements or inaccuracies contained in the registry. The criminal identification bureau may disclose registry information to authorized law-enforcement and governmental agencies of the United States and its territories, of foreign states and of the state of West Virginia upon proper request stating that the information requested is necessary in the interest of and will be used solely in the administration of official duties and the criminal laws. Agreements with other states providing for the reciprocal sharing of abuse registry information are specifically authorized.

(b) An active file on requests for information by requesters shall be maintained by the criminal identification bureau for a period of one year from the date of a request. If an individual who is the subject of the request is placed on the registry with respect to any conviction within one year of the date of the request, that information shall promptly be disclosed to the requester.

§15-2C-5. Expungement of registry listing.
Registry listings of abuse, neglect or misappropriation of property with respect to an individual shall promptly be expunged in cases where a conviction is vacated or overturned following appeal by a court having jurisdiction; where the record of a conviction is expunged by a court having jurisdiction; or in cases where the individual so convicted is granted executive clemency with respect to the conviction.

§15-2C-6. Fees.
The criminal identification bureau may charge, and any requester shall pay a user charge of ten dollars for each request for information made by a requester to the central abuse registry. In order to expedite requests by requesters, the criminal identification bureau may establish a procedure permitting service providers or qualified entities as defined in section one of this article to deposit funds with the bureau in anticipation of requests. Fees pursuant to this section shall be paid into a special account in the State Treasury to be expended for registry purposes and criminal record keeping: Provided, That for and after the fiscal year ending the thirtieth day of June, one thousand nine hundred ninety-eight, all expenditures shall be made in accordance with appropriation by the Legislature. Amounts collected which are found from time to time to exceed the funds needed for Central Abuse Registry and criminal record keeping purposes may be transferred to other accounts or funds and redesignated for other purposes by appropriation of the Legislature. For purposes of this section, the term "criminal record keeping" means the compiling of fingerprints, photographs, criminal disposition reports, uniform crime report statistics and other relevant data regarding the arrest, conviction, incarceration and post-conviction status of criminal violators and sex offenders. "Criminal record keeping" does not include the creation of any data.

§15-2C-7. Registration of home care agencies required; form of registration; information to be provided.
(a) In order to permit providers of home care services not otherwise required to be licensed, certified or registered with the department of health and human resources by other provision of this code to access information in the central abuse registry, all home care service providers not currently licensed, certified or registered by the department shall register with the office of health facilities licensure and certification. No fee may be charged for registration. Registration information shall be provided on a registration form, but no provision of information shall be deemed to meet the registration requirement until the signature of the service provider is recorded on the registration form.

(b) Information required for registration shall include the following:
(1) Name, address and telephone number of the service provider;
(2) The geographic area where services are provided to consumers, the number of homes where services are provided and the number of consumers provided service; and
All residential care facilities, day care centers, providers to adults with behavioral health needs and home care service providers authorized to operate in West Virginia shall:

(1) Provide notice to current employees of the agency and other persons providing services under a contract with the agency within sixty days of the effective date of this article, and provide notice to any newly hired employee or person at the time an employment or contractual relationship is entered into, which notice shall be in the following form:

"NOTICE: All service providers in the state of West Virginia are subject to provisions of law creating a central abuse registry. Any person providing services for compensation to children or to incapacitated adults or to adults receiving behavioral health services, who is convicted of a misdemeanor or felony offense constituting abuse, neglect or misappropriation of property of a child or an incapacitated adult or an adult receiving behavioral health services, is subject to listing on the central abuse registry. The fact that a person is listed on the registry may be disclosed in specific instances provided by law. Listing on the registry may limit future employment opportunities, including opportunities for employment with residential care facilities, day care centers and home care agencies. It is the policy of ________________ [name of agency] to promptly report all suspected instances of abuse, neglect or misappropriation of property to the proper authorities and to cooperate fully in the prosecution of these offenses."

(2) Cooperate fully with law enforcement, prosecuting attorneys and court personnel in criminal prosecutions of acts of child abuse or neglect or abuse or neglect of an incapacitated adult or adult receiving behavioral health services.

(3) Respond promptly to all requests by other service providers for references for former or present employees of the agency, which response may include a subjective assessment as to whether the individual for whom the reference is sought is suited to provide services to children or incapacitated adults or to adults receiving behavioral health services.

(a) Any business, agency or organization that provides care, treatment, education, training, instruction, supervision or recreation for children, the elderly or individuals with disabilities and is a public, private or not-for-profit entity within the State of West Virginia and is a qualified entity as defined in section one of this article may utilize the Central Abuse Registry for part of its screening process for its current and/or prospective employees. Prospective employees and volunteers, for the purposes of this section, include contractors and vendors who have or may have unsupervised access to children or disabled or elderly persons for whom the qualified entity provides care.
(b) In order to verify eligibility as a qualified entity, the business, agency or organization shall apply to the West Virginia State Police on a form prescribed by the Superintendent.

(c) Once verified as a qualified entity by the West Virginia State Police, the entity shall keep all records necessary to facilitate a security audit by the West Virginia State Police and shall cooperate in such audits as the West Virginia State Police or other authorities may deem necessary. Such records include, but are not limited to, criminal history records; notification that an individual has no criminal history; internal policies and procedures articulating the provisions for physical security; records of all disseminations of criminal history information; and a current, executed qualified entity user agreement with the West Virginia State Police.
I have been given a copy of the Central Abuse Registry and by signing I acknowledge that I have read and understand it.

________________________________________________
Client OR Employee Signature   Date

___________________________________________________
Witness Signature     Date
§ 69-6-1. General.


1.2. Authority. W. Va. Code §§ 9-6-1 et seq., 16-5B-1 et seq., and 16-5C-1 et seq.

1.3. Filing Date.

1.4. Effective Date.

1.5. Applicability. This rule applies to nurse aides, staff and residents of facilities and anyone who provides services to a resident of a facility on a regular or intermittent basis as defined in this rule and W. Va. §§ 16-5B-1 et seq. and 16-5C-1 et seq.

1.6. Enforcement. This rule is enforced by the Secretary of the West Virginia Department of Health and Human Resources or his or her lawful designee.

§ 69-6-2. Definitions.

The following definitions are for the purposes of implementing this rule.

2.1. Abuse. The willful infliction of injury, unreasonable confinement, intimidation, or punishment with resulting physical harm, pain or mental anguish. Abuse also includes the deprivation by an individual, including a caretaker, of goods or services that are necessary to attain or maintain physical, mental, and psychosocial well-being. This presumes that instances of abuse of all residents, even those unaware that harm has occurred or those in a coma, cause physical harm, or pain or mental anguish. Abuse includes emotional abuse, physical abuse, sexual abuse, verbal abuse and involuntary seclusion.
2.2. Board of Review. Means the board of review organized in the Department pursuant to W.Va. Code §§ 9-2-6(12).

2.3. Department. West Virginia Department of Health and Human Resources.

2.4. Emotional Abuse. Subjecting or exposing a resident to behavior that may result in psychological trauma or injury. Emotional abuse includes: humiliating, harasing, teasing or threatening; unreasonably restricting a resident’s contact with family, friends or other residents; unreasonably ignoring a resident’s requests; threats of punishment or deprivation; or willfully violating a resident’s rights, including confidentiality. Emotional abuse may also be referred to as psychological abuse, mental abuse, or psychosocial abuse.

2.5. Facility. A nursing home as defined in W. Va. Code § 16-5C-1 et seq. or an extended care facility operated in connection with a hospital as defined in W. Va. Code § 16-5B-1 et seq.

2.6. Involuntary Seclusion. Separation of a resident against the resident’s will, or the will of the resident’s legal representative. Seclusion includes separation of the resident from other residents, separation of the resident from his or her room, or confinement of a resident to his or her room, with or without roommates.

2.7. Misappropriation of Property. The deliberate misplacement, exploitation or wrongful use of a resident’s belongings or money.

2.8. Neglect. The failure to provide goods and services necessary to avoid physical harm, or the significant threat of physical harm, mental anguish or mental illness unless such actions are beyond the nurse aide’s control. Failure to report an incident or failure to appear in response to a subpoena, or both shall be considered neglect.

2.9. Nurse Aide or Nursing Assistant. Any individual who is not a licensed health care provider or registered dietitian or volunteer who provides nursing or nursing related services for hire to residents in a facility after successfully completing a state-approved training and competency evaluation program. The terms nurse aide and nursing assistant are considered interchangeable and have the same meaning.

2.10. Nurse Aide Abuse and Neglect Registry. A list of names of nurse aides who have been found by the Nurse Aide Program to have abused, neglected, or misappropriated the property of residents of a facility, along with any additional information such as documentation of the state’s investigation, the hearing date and the results, as well as any written comments by the nurse aide.

2.11. Nurse Aide Program. The program within the Office of Health Facility Licensure and Certification (OHFLAC) responsible for oversight of the nurse aide training and competency evaluation programs throughout the state and maintenance of the Nurse Aide registries including the Nurse Aide Abuse and Neglect Registry.
2.12. Office of Health Facility Licensure and Certification (OHFLAC). The agency within the West Virginia Department of Health and Human Resources, responsible for oversight of the Nurse Aide Program.

2.13. Physical Abuse. Abuse resulting from nurse aide-to-resident contact including but not limited to striking the resident with a part of the body or with an object; shoving, pushing, pulling, pinching, tugging or twisting any part of the resident’s body with fingers or nails; burning or sticking the resident with an object; engaging in physical contact that is knowing, intentional, reckless or careless that causes or is likely to cause death, physical injury, pain or psychological harm to the resident; inappropriate or improper use of restraints or isolation; acts of retaliation; and even in response to a physical attack. Physical abuse also includes controlling behavior through corporal punishment.

2.14. Secretary. The Secretary of the Department of Health and Human Resources, or his or her designee.

2.15. Sexual Abuse. Sexual harassment, sexual coercion, sexual exploitation, or sexual assault, sexual contact, or graphic images of a resident’s body, including but not limited to, private areas.

2.16. Test-eligible Nurse Aide. Any individual who is not a licensed health care provider or registered dietitian or volunteer, who provides nursing or nursing related services for hire to residents in a nursing home after successfully completing a state-approved nurse aide training program, but who has not yet successfully completed the state-approved competency test. An individual may not work as a nurse aide or nursing assistant on a full-time basis for more than four months, unless the individual has passed the state-approved competency test.

2.17. Verbal Abuse. The use of oral, written or gestured language that willfully includes disparaging and derogatory terms to residents or their families, or within their hearing distance, regardless of their age, ability to comprehend, or disability. Examples of verbal abuse include, but are not limited to, threats of harm; saying things to frighten a resident, such as telling a resident that he or she will never be able to see his or her family again; intimidation; humiliation; threats of hostility, or vulgarity.

§ 69-6-3. Responsibilities of the Nurse Aide. The nurse aide is responsible for all direct care duties assigned by the facility and for safeguarding residents’ rights to a dignified existence, self-determination, and communication. Additional responsibilities that pertain to this rule include, but are not limited to:

3.1. Ensuring that residents are free from abuse, neglect, corporal punishment, involuntary seclusion and misappropriation of property.

3.2. Immediately report to facility administration all incidents of abuse, neglect, or misappropriation of property.
3.3. Maintaining current and accurate information with the Nurse Aide Program including name, address, phone number and all other information required by the Nurse Aide Program.

3.4. Maintaining current and accurate employment information with the Nurse Aide Program.

3.5. Reporting any changes in their criminal history to the Nurse Aide Program.

3.6. Maintaining a copy of this rule.

3.7. Appearing as a witness, if subpoenaed, at the Administrative Hearing regarding an incident of abuse, neglect or misappropriation. If the nurse aide fails to appear, the Nurse Aide Program may place the name of the nurse aide on the Nurse Aide Abuse and Neglect Registry for neglect.

§ 69-6-4. Reporting.

4.1. Reporting Allegations of Suspected Abuse, Neglect or Misappropriation of Property to Facility Administration.

4.1.a. Any employee of a facility, or anyone who provides services to a resident of a facility on a regular or intermittent basis, who suspects that a resident in a facility has been abused or neglected or that the resident's property has been misappropriated shall immediately report the incident to the facility administration and Adult Protective Services as required by W. Va. Code § 9-6-1 et seq.

4.1.b. Failure of a nurse aide to report any incident of suspected abuse, neglect, or misappropriation of property will result in his or her placement on the Nurse Aide Abuse and Neglect Registry for neglect for one year.

4.1.c. A facility shall not discharge, discriminate or retaliate in any manner against any employee who in good faith reports suspected abuse, neglect or misappropriation of residents' property, or who testifies or will testify in good faith in any proceeding concerning abuse, neglect, or misappropriation of property of residents in the facility, except an employee may be suspended, discharged, or restricted in duties if the employee reported himself or herself.

4.2. Reporting Allegations of Suspected Abuse, Neglect, or Misappropriation of Property to the Nurse Aide Program.

4.2.a. When allegations of abuse, neglect, or misappropriation of property of a resident have been reported to the facility, the facility shall submit an immediate report form in a format provided by OHFLAC and completed in its entirety within 24 hours.
4.2.b. The facility shall also report the allegations to Adult Protective Services in accordance with W. Va. Code § 9-6-1 et seq. and to a state or regional long-term care ombudsman operating under the authority of W. Va. §§ 16-5L-1, et seq.

4.2.c. Within five working days after the immediate report, the facility shall submit the five-day follow-up report in the format provided by OHFLAC and completed in its entirety to the Nurse Aide Program.

4.3. The reporting facility shall keep investigative information, including but not limited to, witness statements, physical evidence (including pictures of injuries), videotape evidence, and documentation of a similar nature until final resolution.

4.4. Reports involving rape or sexual assault require the following additional actions:

4.4.a. When rape or sexual assault of a resident is suspected, the designated staff person shall immediately accompany the resident to the nearest emergency room for examination.

4.4.b. If rape or sexual assault is suspected, facility staff shall assure that the matter is reported to local law enforcement.

§ 69-6-5. Investigations.

5.1. The Nurse Aide Program shall review the facilities' immediate and follow-up reports of abuse, neglect or misappropriation of property and assign an OHFLAC surveyor to investigate when applicable.

5.2. The investigation process may include one or more of the following elements:

5.2.a. A visit to the facility;

5.2.b. A private interview with the resident;

5.2.c. Observation of the resident within the facility environment;

5.2.d. Examination of the resident's medical and other records, and any other relevant documents, including incident reports;

5.2.e. Assessment of the resident's physical and mental functioning level;

5.2.f. Examination of any documents prepared by the facility that relate to the alleged incident or the facility's investigation of the incident;
5.2.g. Evaluation of the nature, extent, and cause or causes of the injury or harm suffered by the resident;

5.2.h. Interviews with any potential witnesses who may possess information related to the issues;

5.2.i. An interview with the alleged perpetrator; and

5.2.j. An evaluation of the environment and the risks of physical or emotional injury or harm.

5.3. After completion of the investigation, the OHFLAC surveyor shall complete a report and submit it to the Nurse Aide Program.

§ 69-6-6. Determination. The Nurse Aide Program shall review the investigation report and determine the disposition as follows:

6.1. The evidence is insufficient to warrant further action; or.

6.2. Make a finding of abuse, neglect, misappropriation of property, or a combination thereof and:

6.2.a. Place the nurse aide on the Nurse Aide Abuse and Neglect Registry; or

6.2.a. Offer an alternative sanction.

§ 69-6-7. Notice of Determination.

7.1. If the Nurse Aide Program determines that there is insufficient evidence to substantiate the allegation, the Nurse Aide Program shall notify the nurse aide by regular mail.

7.2. If the Nurse Aide Program makes a finding of abuse, neglect, misappropriation of property, or a combination thereof, the Nurse Aide Program shall notify the nurse aide by certified mail of the determination. The determination notice shall include:

7.2.a. The nature of the offense;

7.2.b. The date of the occurrence;

7.2.c. The right to request a hearing and the procedure for a request;

7.2.d. The right to be represented by an attorney at his or her expense;
7.2.e. The intent to place the individual's name on the Nurse Aide Abuse and Neglect Registry in 30 days if the individual fails to request a hearing or fails to agree to alternative sanctions, if applicable;

7.2.f. The consequences if the Nurse Aide Program places the individual's name on the Nurse Aide Abuse and Neglect Registry; and

7.2.g. The Nurse Aide's right to petition the Nurse Aide Program in writing for removal of his or her name from the Nurse Aide Abuse and Neglect Registry after one year for placement due to neglect.

7.3. The nurse aide has 30 days from the date of receipt of the notice to request a hearing, or agree to alternative sanctions, if applicable.

7.4. If the Nurse Aide fails to request a hearing, or if applicable, agrees to alternative sanctions within 30 days:

7.4.a. The Nurse Aide Program shall place the individual's name on the Nurse Aide Abuse and Neglect Registry; and

7.4.b. The Nurse Aide Program shall notify the nurse aide of placement of his or her name on the Nurse Aide Abuse and Neglect Registry.

7.5. Upon notification that an individual's name has been included on the Nurse Aide Abuse and Neglect Registry of another state, the Nurse Aide Program shall place the individual's name on the West Virginia Nurse Aide Abuse and Neglect Registry and notify the individual according to the provisions of this section.

7.6. When the Nurse Aide Program places an individual's name on the Nurse Aide Abuse and Neglect Registry, it shall notify the Nurse Aide Abuse and Neglect Registries of other states listed on the individual's application as places of employment or residency, as well as the registries of states adjacent to West Virginia of the placement.

7.7. The Nurse Aide Program shall notify, in writing, the administrator at the individual's last known place of employment of the individual's placement on the Nurse Aide Abuse and Neglect Registry.

§ 69-6-8. Hearing.

8.1. Hearings shall be held by the Board of Review in accordance with W. Va. Code § 29A-5-1, et seq. and except as provided in this section, with the Department of Health and Human Resources rule, Rules for Hearings under the Administrative Procedures Act, 69CSR1.
8.2. When the Board of Review receives a nurse aide's written request for a hearing, a hearing shall be scheduled within 120 days of the request.

8.3. The hearing shall be scheduled in proximity to the location where the alleged incident occurred, in OHFLAC offices, or a location agreed to by the parties.

8.4. Written notice of the date, time, place of the hearing, and brief statement of the matter asserted shall be given as prescribed by W.Va. Code § 29A-7-2, or by electronic mail at least 10 days prior to the hearing.

8.5. The nurse aide shall bear the cost of his or her attorney and a copy of the transcript, if requested.

8.6. Due to the confidential nature of these proceedings, the hearing is not open to the public. The Hearing Examiner shall have the authority to determine who may attend the hearing.

8.7. During the hearing, each party may:

8.7.a. Present evidence;

8.7.b. Cross-examine witnesses;

8.7.c. Submit rebuttal evidence; and

8.7.d. Have representation.

8.8. OHFLAC bears the burden of proof by a preponderance of the evidence.

8.9. The Board of Review shall issue a written decision with supporting findings of fact and conclusions of law.

8.10. The Hearing Examiner may dismiss the request for a hearing if the nurse aide fails to appear at the scheduled hearing without good cause. The Hearing Examiner shall reschedule the hearing if the nurse aide establishes in writing good cause for failing to appear within 10 days of receipt of the notice of the failure to appear.

8.11. A nurse aide who fails to appear as a witness at an administrative hearing, after receiving a subpoena to appear, may be placed on the Nurse Aide Abuse and Neglect registry for neglect.

8.12. The Board of Review shall send copies of the final order to the following:
8.12.a. The parties;

8.12.b. The current administrator of the facility in which the incident occurred; and

8.12.c. The administrator of the facility in which the nurse aide is currently working, if applicable.

8.13. If the Board of Review affirms placement on the Nurse Aide Abuse and Neglect Registry, the Nurse Aide Program shall place the nurse aide’s name on the Nurse Aide Abuse and Neglect Registry within 30 days. The nurse aide’s name shall remain on the Nurse Aide Abuse and Neglect Registry until a court of law reverses the decision, or the nurse aide petitions for removal of his or her name from the Nurse Aide Abuse and Neglect Registry at the expiration of his or her placement period.

8.14. The nurse aide has the right to file an appeal of the decision, within 30 days in the county in which the incident occurred or the Circuit Court of Kanawha County.

§ 69-6-9. Court Determination. A determination in any court of law of any abuse, neglect or misappropriation of property by a nurse aide in any case involving a minor or an incapacitated adult shall result in placement of the nurse aide’s name on the Nurse Aide Abuse and Neglect Registry.

§ 69-6-10. Facility Notice and Record Keeping. Facilities shall provide a copy of this rule to each nurse aide on their staff and to each nurse aide at the time of hiring and keep signed proof that each nurse aide has received a copy of the rule.


11.1. Placement on the Nurse Aide Registry for any type of abuse is permanent.

11.2. Placement on the Nurse Aide Registry for neglect is for one calendar year after which the nurse aide may send a written request to the Registry to have his or her name removed, unless:

11.2.a. The nurse aide has continued to work in long term care, assisted living, behavioral health or hospice after he or she has been notified of his or her placement on the Nurse Aide Abuse and Neglect Registry for neglect. The nurse aide shall have the time that he or she worked after his or her notification added to the placement time so that a total of one calendar year is served on the Nurse Aide Abuse and Neglect Registry.

11.2.b. The nurse aide becomes ineligible for other reasons.
Wise Medical Staffing, Inc.

I have been given a copy of the WV Nurse Aide Abuse and Neglect Registry. By signing this document I acknowledge that I have been trained and understand the policy.

_________________________    _____________________
Employee Signature          Date

_________________________    _____________________
Witness Signature            Date
A Review of Dementia Facts

by

NURSING CIRCLES
MYFREECE
4/24/2016

Copyright Information
Copyright © 2016 by MyFreeCE
Purpose:

The goal of this course is to help nurses learn about signs and symptoms of dementia, plus causes and common treatment choices.

Objectives:

By the end of this course, the nurse will be able to:

1. State two generally accepted criteria for the diagnosis of dementia.
2. Identify common treatment choices for dementia patients.
3. Discuss some end-of-life issues related to dementia.
4. List the common signs and symptoms of dementia.
5. Describe the causes of dementia.

Introduction

Dementia is a deterioration of intellectual function and other cognitive skills, leading to a decline in the ability to perform activities of daily living. Dementia is characterized by cognitive decline that occurs with a normal state of consciousness and in the absence of other acute or subacute disorders that may cause reversible cognitive decline (e.g., delirium, depression). Dementia is one of the most serious disorders affecting the elderly. The prevalence of dementia increases rapidly with age. It doubles every 5 years after age 60. Dementia affects only 1% of those aged 60-64 but 30%-50% of those over age 85. In the USA, dementia is the leading cause of institutionalization among the elderly. The prevalence of dementia among elderly nursing home residents is estimated to be 60%-80%.

Every 67 seconds someone in the United States develops Alzheimer’s. More than 5 million Americans are living with Alzheimer’s. Alzheimer’s disease is the 6th leading cause of death in the United States. There are about 500,000 people dying each year because they have Alzheimer’s. 1 in 3 seniors dies with Alzheimer’s or another dementia. Women are at the epicenter of the Alzheimer’s epidemic. In her 60s, a woman’s risk for developing Alzheimer’s is 1 in 6. For breast cancer it is 1 in 11. There are 2.5 times more women than men providing intensive “on-duty: care 24 hours a day for someone with Alzheimer’s.” Almost 2/3 of Americans with Alzheimer’s are women. More than 60% of Alzheimer’s and dementia caregivers are women. An estimated 5.2 million Americans had
Alzheimer’s in 2014, including about 200,000 individuals younger than age 65 who have younger-onset Alzheimer’s.

The statistics surrounding dementia are staggering. There are about 24 million people living with some form of dementia worldwide at this time. Without a major medical breakthrough in the fight against dementia, this number could jump to as many as 84 million who have age-related memory loss by the year 2040. Dementia is a subject that most people try to avoid. The thought of memory loss in a family member or friend is scary enough – but worse yet, to think of ourselves with memory loss makes us very uncomfortable. Unless we have to deal with it directly, we like to think of it as something that happens “to other people.” But dementia is one of the world’s fastest growing diseases. It won’t go away. It is fast becoming “everyone’s problem.” The statistics show that it is a massive problem.

There are many forms of dementia, but Alzheimer’s is the most common of the age-related memory loss diseases. About 13% of Americans over the age of 65 have Alzheimer’s. Half of those over age 85 will develop Alzheimer’s, or a closely related dementia. Health analysts estimated that in just five years the number of Americans with Alzheimer’s will jump to 7.7 million. By 2050 the number is estimated to more than double to 16 million. We have to ask why this disease is growing so rapidly. It is because our population is “graying” and our citizens are living much longer than any previous generation. The fastest growing segment of the population is the over 80 age group. The odds of becoming demented for the very elderly are much higher.

The change in population has taken place quite quickly. A person born in 1900 could have hoped to reach about the age of 50. The average life expectancy then was just 47 years. But over the course of the last century a number of factors, such as medical advances, widespread access to healthcare, improved sanitation and better nutrition have had a huge impact on how long we might live. So now the average life expectancy for both men and women in the United States is 77 years.

There are several mental fluctuations that often precede Alzheimer’s, such as staring into space and disorganized or illogical thinking and/or excessive daytime sleepiness. Sometimes we refer to mental lapses as ‘senior moments.’ It is not clear whether those kinds of lapses can lead to the development of Alzheimer’s disease. Dr. James Galvin, an associate professor of neurology at Washington University School of Medicine in St. Louis stated, “We demonstrated clearly, for the first time, that such episodes are more likely to occur in persons who are
developing Alzheimer’s disease. But it doesn’t mean that everyone who has a ‘senior moment’ is on the verge of dementia.” While these lapses or fluctuations don’t by themselves mean that a person has Alzheimer’s disease, it suggests that they are something the doctor needs to consider if he/she is evaluating the person for problems with thinking and memory.

Galvin’s team did a study on 511 seniors (average age 78), with memory problems. They tested the seniors with standard thinking and memory tests and also interviewed family members about their relative’s daytime sleepiness, disorganized or illogical thinking, or episodes of staring into space for long periods. Three or four symptoms were seen in 12% of participants, indicating cognitive fluctuations. People with the symptoms were 4.6 times more likely to be diagnosed with Alzheimer’s and to have more severe Alzheimer’s symptoms. They also performed worse on thinking and memory test than people without these lapses. Among 216 people diagnosed with very mild or mild dementia, 25 had mental lapses, while only two of the 295 without dementia had the fluctuations.

These mental lapses are common in a type of dementia called dementia with Lewy bodies – the second most common cause of dementia after Alzheimer’s disease.

Risk Factors

There are two risk factors for dementia, genetics and aging, and neither of these factors can be controlled. Both time and money is being put into Alzheimer’s and dementia research. But there is no “magic bullet” solution. There are now several “disease-modifying therapies” in development that might offer temporary slowing of disease progression or even restore cognitive function. But it might take years before these therapies are available to the general public.

The clinician must differentiate dementia from benign senescent forgetfulness (i.e., age-related memory loss), which results from the slowing of neural processes with age. Persons with benign senescent forgetfulness learn new information and recall previously learned information more slowly. But if they are given extra time and encouragement, their intellectual performance is essentially unchanged from their baseline. Daily functioning remains unaffected. Persons with this condition are often more concerned about it than are family members. Reassurance and coping strategies are helpful.

Common Signs of Dementia
Dementia causes many problems for the person who has it and for the person’s family. Many of the problems are due to loss of memory. Some common signs of dementia are listed below. Not everyone who has dementia will have all of these signs.

- **Poor judgment.** Even a person who doesn’t have dementia might get distracted and forget to watch a child closely for a little while. People who have dementia might forget all about the child and just leave the house for the day.

- **Problems with abstract thinking.** Anybody might have trouble balancing a checkbook, but people who have dementia might forget what the numbers are and what has to be done with them.

- **Misplacing things.** People who have dementia may put things in the wrong places. They might put an iron in the freezer or a wristwatch in the sugar bowl. Then they can’t find these things later.

- **Recent memory loss.** All of us forget things for a while and then remember them later. People with dementia often forget things, but they never remember them. They might ask you the same question over and over, each time forgetting that you already answered that question. They won’t even remember that they already asked the question.

- **Difficulty performing familiar tasks.** People who have dementia might cook a meal but forget to serve it. They might even forget that they cooked it.

- **Problems with language.** People who have dementia may forget simple words or use the wrong words. This makes it hard to understand what they want.

- **Time and place disorientation.** People who have dementia may get lost on their own street. They may forget how they got to a certain place and how to get back home.

- **Changes in mood.** Everyone is moody at times, but people with dementia might have fast mood swings, going from calm to tears to anger in a few minutes.

- **Personality changes.** People who have dementia might have drastic changes in personality. They might become irritable, suspicious or fearful.

- **Loss of initiative.** People who have dementia might become passive. They might not want to go places or see other people.

**Kinds of Dementia**
Dementing disorders can be classified many different ways. These classification schemes attempt to group disorders that have particular features in common, such as whether they are progressive or what parts of the brain are affected. Some frequently used classifications include the following:

- **Cortical dementia** - dementia where the brain damage primarily affects the brain’s cortex, or outer layer. Cortical dementias tend to cause problems with memory, language, thinking, and social behavior.
- **Subcortical dementia** - dementia that affects parts of the brain below the cortex. Subcortical dementia tends to cause changes in emotions and movement in addition to problems with memory.
- **Progressive dementia** - dementia that gets worse over time, gradually interfering with more and more cognitive abilities.
- **Primary dementia** - dementia such as Alzheimer’s disease (AD) that does not result from any other disease.
- **Secondary dementia** - dementia that occurs as a result of a physical disease or injury.

Some types of dementia fit into more than one of these classifications. For example, AD is considered both a progressive and a cortical dementia. **Alzheimer’s disease** is the most common cause of dementia in people aged 65 and older. In most people, symptoms of AD appear after age 60. But there are some early-onset forms of the disease, usually linked to a specific gene defect, which may appear as early as age 30. AD usually causes a gradual decline in cognitive abilities, usually during a span of 7-10 years. Nearly all brain functions, including memory, movement, language, judgment, behaviors, and abstract thinking are eventually affected. AD is characterized by two abnormalities in the brain: amyloid plaques and neurofibrillary tangles. Amyloid plaques, which are found in the tissue between the nerve cells, are unusual clumps of a protein called beta amyloid along with degenerating bits of neurons and other cells. In the early stages of AD patients may experience memory impairment, lapses of judgment, and subtle changes in personality. As the disorder progresses, memory and language problems worsen and patients begin to have difficulty performing activities of daily living, such as balancing a checkbook or remembering to take medications. They also might have visuospatial problems, such as difficulty navigating an unfamiliar route. They may become disoriented about places and times, may suffer delusions (such as the idea that someone is stealing from them or that their spouse is being unfaithful), and may become short-tempered and hostile. During the late stages of the disease, patients begin to lose the ability to control
motor functions. They may have difficulty swallowing and lose bowel and bladder control. They eventually lose the ability to recognize family members and to speak. As AD progresses, it begins to affect the person’s emotions and behavior. Most people with AD eventually develop symptoms, such as aggression, agitation, depression, sleeplessness, or delusions. On average, patients with AD live for 8-10 years after they are diagnosed. However, some people live as long as 20 years. Patients with AD often die of aspiration pneumonia because they lose the ability to swallow late in the course of the disease.

**Vascular dementia** accounts for up to 20% of all dementias and is caused by brain damage from cerebrovascular or cardiovascular problems – usually strokes. It also might result from genetic diseases, endocarditis (infection of a heart valve), or amyloid angiopathy (process in which amyloid protein builds up in the brain’s blood vessels, sometimes causing hemorrhagic or “bleeding” strokes). In many cases, it may coexist with AD. The incidence of vascular dementia increases with advancing age and is similar in men and women. Symptoms of vascular dementia often begin suddenly, frequently after a stroke. Patients may have a history of high blood pressure, vascular disease, or previous strokes or heart attacks. Vascular dementia may or may not get worse with time, depending on whether the person has additional strokes. In some cases, symptoms may get better with time. When the disease does get worse, it often progresses in a stepwise manner, with sudden changes in ability. Vascular dementia with brain damage to the mid-brain regions, however, may cause a gradual, progressive cognitive impairment that may look much like AD. Unlike people with AD, people with vascular dementia often maintain their personality and normal levels of emotional responsiveness until the later stages of the disease. People with vascular dementia frequently wander at night and often have other problems commonly found in people who have had a stroke, including depression and incontinence. There are several types of vascular dementia, which vary slightly in their causes and symptoms. One type, called multi-infarct dementia (MID), is caused by numerous small strokes in the brain. MID typically includes multiple damaged areas, called infarcts, along with extensive lesions in the white matter, or nerve fibers, of the brain. Because the infarcts in MID affect isolated areas of the brain, the symptoms are often limited to one side of the body or they may affect just one or a few specific functions, such as language. Neurologists call these “local” or “focal” symptoms, as opposed to the “global” symptoms seen in AD, which affect many functions and are not restricted to one side of the body.

Although not all strokes cause dementia, in some cases a single stroke can damage the brain enough to cause dementia. This condition is called **single-infarct**
Dementia. Dementia is more common when the stroke takes place on the left side (hemisphere) of the brain and/or when it involves the hippocampus, a brain structure important for memory.

Another type of vascular dementia is called Binswanger’s disease. This rare form of dementia is characterized by damage to small blood vessels in the white matter of the brain (white matter is found in the inner layers of the brain and contains many nerve fibers coated with a whitish, fatty substance called myelin). Binswanger’s disease leads to brain lesions, loss of memory, disordered cognition, and mood changes. Patients with this disease often show signs of abnormal blood pressure, blood abnormalities, disease of the large blood vessels in the neck, and/or disease of the heart valves. Other prominent features include urinary incontinence, difficulty walking, clumsiness, slowness, lack of facial expression, and speech difficulty. These symptoms, which usually begin after the age of 60, are not always present in all patients and may sometimes appear only temporarily. Treatment of Binswanger’s disease is symptomatic, and may include the use of medications to control high blood pressure, depression, heart arrhythmias, and low blood pressure. The disorder often includes episodes of partial recovery.

Another type of vascular dementia is linked to a rare hereditary disorder called CADASIL, which stands for cerebral autosomal dominant arteriopathy with subcortical infarct and leukoencephalopathy. CADASIL is linked to abnormalities of a specific gene, Notch3, which is located on chromosome 19. This condition causes multi-infarct dementia as well as stroke, migraine with aura, and mood disorders. The first symptoms usually appear in people who are in their 20s, 30s, or 40s and affected individuals often die by age 65. Researchers believe most people with CADASIL go undiagnosed, and the actual prevalence of the disease is not yet known.

Other causes of vascular dementia include vasculitis, an inflammation of the blood vessel system; profound hypotension (low blood pressure); and lesions caused by brain hemorrhage. The autoimmune disease lupus erythematosus and the inflammatory disease temporal arteritis can also damage blood vessels in a way that leads to vascular dementia.

Lewy body dementia (LBD) is one of the most common types of progressive dementia. LBD usually occurs sporadically, in people with no known family history of the disease. But rare familial cases have occasionally been reported. In LBD, cells die in the brain’s cortex, or outer layer, and in a part of the mid-brain called the substantia nigra. Many of the remaining nerve cells in the substantia
nigra contain abnormal structures called Lewy bodies that are the hallmark of the disease. Lewy bodies may also appear in the brain's cortex, or outer layer. Lewy bodies contain a protein called alpha-synuclein that has been linked to Parkinson's disease and several other disorders. Researchers, who sometimes refer to these disorders collectively as "synucleinopathies", do not yet know why this protein accumulates inside nerve cells in LBD. The symptoms of LBD overlap with AD in many ways, and might include memory impairment, poor judgment, and confusion. But LBD typically also includes visual hallucinations, parkinsonian symptoms such as a shuffling gait and flexed posture, and day-to-day fluctuations in the severity of symptoms. Patients with LBD live an average of seven years after symptoms begin. There is no cure for LBD, and treatments are aimed at controlling the parkinsonian and psychiatric symptoms of the disorder. Patients sometimes respond dramatically to treatment with antiparkinsonian drugs and/or cholinesterase inhibitors, such as those used for AD. Some studies indicate that neuroleptic drugs, such as clozapine and olanzapine, also can reduce the psychiatric symptoms of this disease. But neuroleptic drugs may cause severe adverse reactions, so other therapies should be tried first and patients using these drugs should be closely monitored. Lewy bodies are often found in the brains of people with Parkinson's and AD. These findings suggest that either LBD is related to these other causes of dementia or that the diseases sometimes coexist in the same person.

Frontotemporal dementia (FTD), sometimes called frontal lobe dementia, describes a group of diseases characterized by degeneration of nerve cells - especially those in the frontal and temporal lobes of the brain. Unlike AD, FTD usually does not include formation of amyloid plaques. In many people with FTD, there is an abnormal form of tau protein in the brain, which accumulates into neurofibrillary tangles. This disrupts normal cell activities and may cause the cells to die. Experts believe FTD accounts for 2-10% of all cases of dementia. Symptoms of FTD usually appear between the ages of 40 and 65. In many cases, people with FTD have a family history of dementia, suggesting that there is a strong genetic factor in the disease. The duration of FTD varies, with some patients declining rapidly over 2-3 years and others showing only minimal changes for many years. People with FTD live with the disease for an average of 5-10 years after diagnosis. Because structures found in the frontal and temporal lobes of the brain control judgment and social behavior, people with FTD often have problems maintaining normal interactions and following social conventions. They might steal or exhibit impolite and socially inappropriate behavior, and they may neglect their normal responsibilities. Other common symptoms include loss of speech and language, compulsive or repetitive behavior, increased appetite, and motor problems such as
stiffness and balance problems. Memory loss also may occur, although it typically appears late in the disease.

In one type of FTD called Pick’s disease, certain nerve cells become abnormal and swollen before they die. These swollen, or ballooned, neurons are one hallmark of the disease. The brains of people with Pick’s disease also have abnormal structures called Pick bodies, composed largely of the protein tau, inside the neurons. The cause of Pick’s disease is unknown, but it runs in some families and thus it is probably due at least in part to a faulty gene or genes. The disease usually begins after age 50 and causes changes in personality and behavior that gradually worsen over time. The symptoms of Pick’s disease are very similar to those of AD, and may include inappropriate social behavior, loss of mental flexibility, language problems, and difficulty with thinking and concentration. There is currently no way to slow the progressive degeneration found in Pick’s disease. But medication might be helpful in reducing aggression and other behavioral problems, and in treating depression.

In some cases, familial FTD is linked to a mutation in the tau gene. This disorder, called frontotemporal dementia with parkinsonism linked to chromosome 17, is much like other types of FTD but often includes psychiatric symptoms such as delusions and hallucinations.

Primary progressive aphasia (PPA) is a type of FTD that might begin in people as early as their 40s. “Aphasia” is a general term used to refer to deficits in language functions, such as speaking, understanding what others are saying, and naming common objects. In PPA one or more of these functions can become impaired. Symptoms often begin gradually and progress slowly over a period of years. As the disease progresses, memory and attention might also be impaired and patients may show personality and behavior changes. Many, but not all, people with PPA eventually develop symptoms of dementia.

HIV-associated dementia (HAD) results from infection with the human immunodeficiency virus (HIV) that causes AIDS. HAD can cause widespread destruction of the brain’s white matter. This leads to a type of dementia that generally includes impaired memory, apathy, social withdrawal and difficulty concentrating. People with HAD often develop movement problems as well. There is no specific treatment for HAD, but AIDS drugs can delay onset of the disease and might help to reduce symptoms.
Huntington’s disease (HD) is a hereditary disorder caused by a faulty gene for a protein called huntingtin. The children of people with the disorder have a 50% chance of inheriting it. The disease causes degeneration in many regions of the brain and spinal cord. Symptoms of HD usually begin when patients are in their 30s or 40s, and the average life expectancy after diagnosis is about 15 years. Cognitive symptoms of HD typically begin with mild personality changes, such as irritability, anxiety, and depression, and progress to severe dementia. Many patients also show psychotic behavior. HD causes chorea-involuntary jerky, arrhythmic movements of the body – as well as muscle weakness, clumsiness, and gait disturbances.

Dementia pugilistica, also called chronic traumatic encephalopathy or Boxer’s syndrome, is caused by head trauma, such as that experienced by people who have been punched many times in the head during boxing. The most common symptoms of the condition are dementia and parkinsonism, which can appear many years after the trauma ends. Affected individuals may also develop poor coordination and slurred speech. A single traumatic brain injury may also lead to a disorder called post-traumatic dementia (PTD). PTD is much like dementia pugilistica but usually also includes long-term memory problems. Other symptoms vary depending on which part of the brain was damaged by the injury.

Corticobasal degeneration (CBD) is a progressive disorder characterized by nerve cell loss and atrophy of multiple areas of the brain. Brain cells from people with CBD often have abnormal accumulations of the protein tau. CBD usually progresses gradually over the course of 6-8 years. Initial symptoms, which typically begin at or around age 60, may first appear on one side of the body but eventually will affect both sides. Some of the symptoms, such as poor coordination and rigidity, are similar to those found in Parkinson’s disease. Other symptoms may include memory loss, dementia, visual-spatial problems, apraxia (loss of the ability to make familiar, purposeful movement), hesitant and halting speech, myoclonus (involuntary muscular jerks), and dysphagia (difficulty swallowing). Death is often caused by pneumonia or other secondary problems such as sepsis (severe infection of the blood) or pulmonary embolism (a blood clot in the lungs). There are no specific treatments available for CBD. Drugs such as clonazepam might help with myoclonus, however, and occupational, physical, and speech therapy can help in managing the disabilities associated with this disease. The symptoms of the disease often do not respond to Parkinson’s medications or other drugs.
Creutzfeldt-Jakob disease (CJD) is a rare, degenerative, fatal brain disorder that affects about 1 in every million people per year worldwide. Symptoms usually begin after age 60 and most patients die within 1 year. Many researchers believe CJD results from an abnormal form of a protein called a prion. Most cases of CJD occur sporadically, that is, in people who have no known risk factors for the disease. About 5-10% of cases of CJD in the U.S. are hereditary, caused by a mutation in the gene for the prion protein. In rare cases, CJD can also be acquired through exposure to diseased brain or nervous system tissue, usually through certain medical procedures. There is no evidence that CJD is contagious through the air or through casual contact with a CJD patient. Patients with CJD may initially experience problems with muscular coordination; personality changes, including impaired memory, judgment, and thinking; and impaired vision. Other symptoms may include insomnia and depression. As the illness progresses, mental impairment becomes severe. Patients often develop myoclonus and they may go blind. They eventually lose the ability to move and speak, and go into a coma. Pneumonia and other infections often occur in these patients and can lead to death. CJD belongs to a family of human and animal diseases known as the transmissible spongiform encephalopathies (TSEs). Spongiform refers to the characteristic appearance of infected brains, which become filled with holes until they resemble sponges when viewed under a microscope. CJD is the most common of the known human TSEs. Others include fatal familial insomnia and Gerstmann-Straussler-Scheinker disease. In recent years, a new type of CJD, called variant CJD (vCJD), has been found in Great Britain and several other European countries. The initial symptoms of vCJD are different from those of classic CJD and the disorder typically occurs in younger patients. Research suggests that vCJD may have resulted from human consumption of beef from cattle with a TSE disease called bovine spongiform encephalopathy (BSE), also known as "mad cow disease".

Other rare hereditary dementias include Gerstmann-Strausslet-Scheinker (GSS) disease, fatal familial insomnia, familial British dementia, and familial Danish dementia. Symptoms of GSS typically include ataxia and progressive dementia that begins when people are between 50-60 years old. The disease may last for several years before patients eventually die. Fatal familial insomnia causes degeneration of a brain region called the thalamus, which is partially responsible for controlling sleep. It causes a progressive insomnia that eventually leads to a complete inability to sleep. Other symptoms may include poor reflexes, dementia, hallucinations, and eventually coma. It can be fatal within 7-13 months after symptoms begin but might last longer. Familial British dementia and familial Danish dementia have been linked to two different defects in a gene found on
chromosome 13. The symptoms of both diseases include progressive dementia, paralysis and loss of balance.

**Secondary Dementias** – Dementia may occur in patients who have other disorders that primarily affect movement or other functions. These cases are often referred to as secondary dementias. The relationship between these disorders and the primary dementias is not always clear. People with advanced Parkinson's disease, which is primarily a movement disorder, sometimes develop symptoms of dementia. Many Parkinson's patients also have amyloid plaques and neurofibrillary tangles like those found in AD. The two diseases might be linked in a yet-unknown way, or they may simply coexist in some people. People with Parkinson’s and associated dementia sometimes show signs of Lewy body dementia or progressive supranuclear palsy at autopsy, suggesting that these diseases might also overlap with Parkinson’s or that Parkinson’s is sometimes misdiagnosed.

Other disorders that might include symptoms of dementia include multiple sclerosis; presenile dementia with motor neuron disease, also called ALS dementia; olivopontocerebellar atrophy (OPCA); Wilson’s disease; and normal pressure hydrocephalus (NPH).

**Caring For a Demented Person**

Because of the intensity of care that might be required, it is often difficult for even a loving family to provide “around the clock” care that a demented relative needs. If friends or family wish to provide these services, it is very important for them to be aware not only the demented person’s needs, but also of their own needs. It is not uncommon for a spouse or children to feel that they have an impossible choice between being utterly overwhelmed (if they try to provide all the care) or feeling they are betraying their relative (if they send them to a nursing home). This often leads to the care provider becoming exhausted. Because of this it is often helpful to investigate local resources to help the care provider.

**Local Resources**

- Adult Foster Care – Private individuals' non-profit organizations maintain houses and provide care for one or more impaired persons (persons must generally be able to perform most self-care functions).
- Meals on Wheels – Takes meals to the home.
• Respite Care – Publicly or privately paid temporary care (relieves primary caregiver to do errands or just “get away for awhile”).
• Adult Day Care – Private programs that provide a safe structured setting and allow respite for the caregiver.
• Case Manager and Service Coordinator – In recent years a number of people, often social workers, assist the families of cognitively and/or physically impaired persons with identifying and coordinating needed services.

Causes of Dementia

More than 50 conditions are associated with dementia, including degenerative neurological disorders, (e.g., Alzheimer’s disease), vascular disorders (e.g., multi-infarct disease), inherited disorders (e.g., Huntington’s disease), and infectious diseases (e.g., HIV/AIDS).

Alzheimer’s is the progressive deterioration of areas in the brain essential for learning and memory. Lewy body dementia is similar to Alzheimer’s but may progress more rapidly. Abnormal brain cells called cortical Lewy bodies occur throughout the brain and produce symptoms. Pick’s disease is also similar to Alzheimer’s. In most patients, the frontal and temporal lobes of the brain atrophy. This illness usually affects people between the ages of 40-60 years. Amyotrophic lateral sclerosis (Lou Gehrig’s disease), Huntington’s disease and Parkinson’s disease are also associated with dementia. Progressive supranuclear palsy produces clinical features similar to Parkinson’s disease and often causes severe cognitive difficulties. HIV/AIDS is a viral infection that may lead to AIDS dementia complex during late stages of the disease. Antiretroviral therapy has reduced the incidence of AIDS dementia. Creutzfeldt-Jakob disease is a fatal infectious disease characterized by brain tissue that is filled with holes and looks like a sponge under microscopic examination. Multi-infarct disease is the second most common cause of irreversible dementia. In this condition, multiple strokes (infarcts) lead to a progressive decline in cognition. Multiple infarct dementia is more common in men over 50 years old. A person with this condition also may experience motor weakness, urinary incontinence and irregular muscle coordination (ataxia), and may develop hypertension, diabetes, or vascular disease. Alcoholism can lead to vitamin B1 (thiamine) deficiency, seizures, and head injuries that produce dementia. Chronic drug abuse also can cause symptoms of dementia. Drugs that might cause dementia include the following:

• Anticholinergics
• Barbiturates
• Benzodiazepines
• Cough suppressants
• Digitalis
• Monoamine oxidase inhibitors
• Tricyclic antidepressants

Disease caused by viral, bacterial, or fungal infection can lead to impaired cognitive function. In some cases, appropriate treatment of the underlying condition can reverse symptoms. Infections that may cause dementia-like symptoms include meningitis (inflammation of membranes that cover the brain and spinal cord; bacterial, viral, or fungal) and encephalitis (inflammation of the brain caused by viral or bacterial infection).

Neurosyphilis dementia might result from late-stage syphilis. This disease also may cause heart problems, tremors, loss of muscle coordination ataxia), paralysis, and blindness are irreversible.

Structural abnormalities that can produce dementia include brain tumors located in areas involved with cognitive function, chronic subdural hematoma resulting from head injury (common in the elderly and alcoholics), and hydrocephalus. Surgical treatment can relieve symptoms.

Metabolic disorders such as low level of thyroid hormone or thyroid stimulating hormone (hypothyroidism), low blood sugar level (hypoglycemia), high blood calcium level (hypercalcemia), and liver disease can affect cognitive function. Treating the underlying condition can restore function.

Treatment

Even if the doctor diagnoses an irreversible form of dementia, much still can be done to treat the patient and help the family cope. A person with dementia should be under a doctor’s care, and may see a neurologist, psychiatrist, family doctor, internist, or geriatrician. The doctor can treat the patient’s physical and behavioral problems and answer the many questions that the person or family may have.

For some people in the early and middle stages of Alzheimer’s disease, the drugs tacrine (Cognex), donepezil (Aricept), rivastigmine (Exelon), and galantamine (Romany) are prescribed to possibly delay the worsening of some of the disease’s
symptoms. Doctors believe it is very important for people with multi-infarct dementia to try to prevent further strokes by controlling high blood pressure, monitoring and treating high blood cholesterol and diabetes, and not smoking.

Many people with dementia need no medication for behavioral problems. But for some people, doctors may prescribe medications to reduce agitation, anxiety, depression, or sleeping problems. These troublesome behaviors are common in people with dementia. Careful use of doctor-prescribed drugs may make some people with dementia more comfortable and make caring for them easier.

A healthy diet is important. Although no special diets or nutritional supplements have been found to prevent or reverse Alzheimer’s disease or multi-infarct dementia, a balanced diet helps maintain overall good health. In cases of multi-infarct dementia, improving the diet may play a role in preventing more strokes.

Family members and friends can assist people with dementia in continuing their daily routines, physical activities, and social contacts. People with dementia should be kept up-to-date about the details of their lives, such as the time of day, where they live, and what is happening at home or in the world. Memory aids may help in the day-to-day living of patients in the earlier stages of dementia. Some families find that a big calendar, a list of daily plans, notes about simple safety measures, and written directions describing how to use common household items are very useful aids.

**End of Life Issues**

Medical and financial planning is imperative before dementia becomes too severe. Patients should appoint a health care proxy and discuss health care wishes with the proxy and primary physician. As dementia worsens, the risk/benefit ratio becomes less favorable for highly aggressive interventions and hospital care. In severe cases, patient comfort might be more appropriate than attempts to prolong life; the physician and health care proxy must collaborate on the care plan. A time may come when decisions must be made about artificial feeding or treatment of acute illness. These decisions are best discussed before such a situation arises and then discussed again when the situation becomes critical. Unlike cancer and some other conditions, dementia has no good prognostic models. Usually patients with Alzheimer’s disease who can no longer walk have about six months to live.

**Diagnosis of Dementia**
A diagnosis of dementia requires a medical history; physical examination, including neurological examination; and appropriate laboratory tests. Taking a thorough medical history involves gathering information about the onset, duration, and progression of symptoms; any possible risk factors for dementia, such as a family history of the disorder or other neurological disease; history of stroke; and alcohol or other drug (prescription or over-the-counter) use.

The American Psychiatric Association has established two generally accepted criteria for the diagnosis of dementia: (1) erosion of recent and remote memory and (2) impairment of one or more of the following functions:

- Language – misuse of words or inability to remember and use words correctly (i.e., aphasia)
- Motor activity – unable to perform motor activities even though physical ability remains intact (i.e., apraxia)
- Recognition – unable to recognize objects, even though sensory function is intact (i.e., agnosia)
- Executive function – unable to plan, organize, think abstractly

Symptoms often develop gradually and show a progressive deterioration in function. The physician must distinguish between delirium and dementia. Delirium is a transient, acute mental disturbance that manifests as disorganized thinking and a decreased ability to pay attention to the external world. Delirium is often caused by infectious disease, brain tumor, poisoning, drug or alcohol intoxication or withdrawal, seizures, head trauma, and metabolic disorders. It is important to treat underlying conditions promptly, as they may be life-threatening or progressive if left untreated. Symptoms of delirium include the following:

- Disorientation as to person, place, and time.
- Memory impairment
- Rambling, irrelevant, incoherent speech
- Reduced level of consciousness

References

A Review of Dementia Facts - Final Exam

20 Questions

1. Dementia is ________________.
   A. Cognitive decline that occurs with a normal state of consciousness
   B. Decline that occurs in the absence of other acute or subacute disorders that may cause reversible cognitive decline
   C. One of the most serious disorders affecting the elderly
   D. All of the above

2. The prevalence of dementia increased rapidly with age and doubles every ___ years after age 60.
   A. Three
   B. Five
   C. Four
   D. Six

3. Dementia affects only 1% of those aged 60-64 but ____ of those over age 85.
   A. 30% - 50%
   B. 20% - 30%
   C. 15% - 20%
   D. 25% - 40%

4. The prevalence of dementia among elderly nursing home residents is estimated to be ____.
   A. 30% - 45%
   B. 50% - 60%
   C. 60% - 80%
   D. 40% - 50%

5. Every _______ someone in the United States develops Alzheimer’s.
   A. Day
   B. 2 hours
   C. 67 seconds
   D. 60 minutes

6. Alzheimer’s disease is the ____ leading cause of death in the United States.
   A. 3rd
   B. 6th
   C. 2nd
   D. 4th

7. The average life expectancy for both men and women in the United States is now ___ years.
   A. 69
   B. 88
   C. 77
   D. 85

8. The risk factors for dementia are ____________.
9. The second most common cause of dementia after Alzheimer’s disease is called ____________.
   A. Lewy body dementia
   B. Vascular dementia
   C. Binswanger's disease
   D. Frontotemporal dementia

10. Common signs of dementia include:
    A. Poor judgment; problems with abstract thinking; time and place disorientation; personality changes; loss of initiative
    B. Mislacbing things; recent memory loss; changes in mood
    C. Difficulty performing familiar tasks; problems with language
    D. All the above

11. Dementing disorders can be classified many different ways – some frequently used classifications include:
    A. All the below
    B. Cortical dementia; subcortical dementia
    C. Progressive dementia
    D. Primary dementia; secondary dementia

12. __________ accounts for up to 20% of all dementias.
    A. Binswanger's disease
    B. Vascular dementia
    C. Lewy Body dementia
    D. Frontotemporal dementia (FTD)

13. One type of FTD is called ____________.
    A. Pick's disease
    B. Huntington's disease
    C. Dementia pugilistica
    D. Corticobasal degeneration (CBD)

14. Another name for dementia pugilistica is ____________.
    A. Chronic traumatic encephalopathy
    B. Boxer’s syndrome
    C. A and/or B
    D. Huntington's disease

15. ____________ is a progressive disorder characterized by nerve cell loss and atrophy of multiple areas of the brain.
    A. Corticobasal degeneration (CBD)
    B. HIV-associated dementia (HAD)
    C. Huntington's disease (HD)
    D. Dementia pugilistica

16. Drugs that might cause dementia include:
A. Anticholinergics; barbiturates  
B. Benzodiazepines; cough suppressants  
C. Digitalis; monoamine oxidase inhibitors; tricyclic antidepressants  
D. All the above

17. Disease caused by _____________ can lead to impaired cognitive function.
   A. Viral infection  
   B. Bacterial infection  
   C. Fungal infection  
   D. All the above

18. Metabolic disorders such as ___________ can affect cognitive function.
   A. Low level of thyroid hormone; thyroid stimulating hormone (hypothyroidism)  
   B. Low blood sugar level (hypoglycemia); high blood calcium level  
   C. A, B and D  
   D. Liver disease

19. The American Psychiatric Association has established ___ generally accepted criteria for the diagnosis of dementia.
   A. Four  
   B. Two  
   C. Three  
   D. Five

20. Symptoms of delirium include the following:
   A. Disorientation as to person, place and time  
   B. A, C and D  
   C. Memory impairment; rambling, irrelevant, incoherent speech  
   D. Reduced level of consciousness
Alzheimer’s Disease: Are You In There?

by

08/02/2015

Copyright Information

Copyright © 2015 by
MyFreeCE
GOAL:

The goal of this article is to provide healthcare professionals, as well as families, with a basic understanding of the changes in memory, communication, function and behavior that occur as a result of Alzheimer’s disease and the appropriate intervention strategies to enhance the care they provide to these individuals. The goal is to increase the understanding of the disease process and awareness that recent advances in research may stimulate further investigations in this largely unexplored illness.

OBJECTIVES:

1. Define dementia
2. Describe two changes that occur in the brain as a result of Alzheimer’s disease
3. List two ways to diagnose Alzheimer’s disease
4. Identify the stages of Alzheimer’s disease and the changes that occur in these stages
5. Discuss 3 cognitive functions that are lost in Alzheimer’s disease

INTRODUCTION:

Alzheimer’s disease is a progressive, degenerative disorder that attacks the brain’s nerve cells, or neurons, resulting in loss of memory, thinking, language skills and behavioral changes. These neurons, which produce the brain chemical, or neurotransmitter, acetylcholine, break connections with other nerve cells and ultimately die. There are two types of abnormal lesions that clog the brains of people having Alzheimer’s disease: Beta-amyloid plaques (sticky clumps of protein fragments and cellular material that form outside and around neurons) and neurofibrillary tangles (insoluble twisted fibers composed largely of the protein tau that build up inside nerve cells). Although these structures are hallmarks of the disease, scientists are unclear whether they cause it or are a byproduct of it.

It has emerged from obscurity over the past few decades. It was once considered to be a rare disorder, but is now seen as a major public health problem that has a severe impact on millions of older Americans and their families.

It is the most frequent cause of neurodegenerative dementia among the elderly and the incidence increases with age. It begins slowly and first involves the parts of the brain that control thought, memory and language. There is mild cognitive impairment that causes more memory problems than normal for people of the same age. It is estimated that 5.3 million Americans over the age of 65 are affected with this condition. The incidence of the disease doubles every five years after the age of 65. By the age 85, it will affect nearly half the population. There are about 200,000 people affected under the age of 65. Those under the age of 65 are considered to have early onset (EOAD) and approximately 5 percent of people who have the disease are in their 40’s or 50’s.

Alzheimer’s disease is not a normal part of aging. The origin of the term dates back to 1906
when Alois Alzheimer, a German physician, presented a case history before a medical meeting describing a 51-year-old woman who suffered from a rare brain disorder. It was by a brain autopsy that the plaques and tangles that characterize Alzheimer’s disease were identified. The autopsy revealed that the cortex of her brain had shrunk dramatically. Because he knew that the cortex was responsible for memory, thinking, judgment and speech, he studied it under a microscope and found widespread fatty deposits in the small blood vessels. He also found some dead and dying brain cells with many abnormal deposits in and around the cells. He published his findings in 1907, and in 1910, a psychiatrist by the name of Dr. Emil Kraepelin asked that the disease be named Alzheimer’s disease.

Experts suggest that more than 5 million Americans are living with the disease. By 2050, this number is projected to rise to 14 million. The number of people with this disease doubles every 5 years beyond the age of 65. It is one of the top 10 leading causes of death in the United States. It is the 6th leading cause of death among U.S. adults and it is the 5th leading cause of death among adults aged 65-85 years. It is the seventh leading cause of death in America and there is presently no cure. However, it is known that with effective care and support, the quality of life for these individuals improves from the point of diagnosis to the end of life. There is presently a worldwide effort to discover treatments, delay the onset of the disease and/or prevent it from developing.

Scientists do not yet understand what causes the disease, but assume that there is probably not one single cause, but several factors that affect each person differently. Though the best-known factor is age, researchers believe that genetics or family history may also play a role in developing Alzheimer’s. Changes in the brain can start years before the first symptoms appear. It is also believed that some of the risk factors for heart disease and stroke, such as high blood pressure, high cholesterol and low levels of the vitamin folate may also increase the risk.

There is no treatment to stop the disease; however, there are drugs available that may help keep symptoms from getting worse for a limited period of time. The disease progresses in three stages - an early, preclinical stage with no symptoms, a middle stage of mild cognitive impairment, and a final stage of Alzheimer’s dementia. There are four other stages associated with all of the 3 stages, making 7 different stages in its entirety. The time from diagnosis to death varies - as little as 3 – 4 years if the person is older than 80 when diagnosed to as long as 10 or more years if the person is young.

Alzheimer’s dementia is increasingly being recognized as one of the most important medical and social problems in older people in industrialized and non-industrialized nations. As of now, only symptomatic treatments exist for the disease, all of which try to counterbalance the neurotransmitter disturbance. These are known as “disease modifying drugs” and remain under extensive research. In order to block the progression of the disease, they have to interfere with the pathogenic steps that are responsible for the clinical symptoms. Unfortunately, it is a non-reversible brain disorder.

The National Institute on Aging is the lead agency for research at the National Institutes of Health. The AD program was first launched in 1978 and the study of the disease has become a
top priority. The study is moving ahead rapidly and, hopefully, with the assistance of other research organizations around the world, there will be new highlights and new approaches geared to not only helping families care for people with AD, but that there will someday be a cure!

The Alzheimer’s Association is the leading voluntary organization in the care, support and research of Alzheimer’s patients. Their goal is to eliminate the disease through the advancement of research, to provide and enhance care and support for all affected, and to reduce the risk of dementia through the promotion of brain health. The vision of the organization is “a world without Alzheimer’s disease.”

DEMENTIA:

Dementia is the loss of cognitive functioning (thinking, remembering, reasoning) and behavioral abilities to such an extent that it interferes with a person’s daily life and activities. It ranges in severity from the mildest stage, when it is just beginning to affect a person’s functioning, to the most severe stage, when the person must depend completely on others for basic activities of daily living.

The word “dementia” comes from the Latin _de_ meaning “apart” and the word _mens_ means “mind.” Dementia is not a disease itself. It is a group of symptoms that are caused by various diseases or conditions. The deterioration is more than might be expected from normal aging and is due to damage or disease. Dementia is significantly more common among elderly people; however, it can affect adults of any age.

The causes of dementia can vary. It depends on the types of brain changes that may be taking place. It is common for people to have mixed dementia, a combination of two or more disorders, at least one of which is dementia. For example – having Alzheimer’s disease and vascular dementia.

Dementia is increasing in frequency more than most other types of dementia. Some researchers believe that as many as half of all people over 80 years old develop Alzheimer’s disease. Also, the increased incidence of AIDS dementia complex, which results from HIV infection, helps account for the increased dementia in recent history, although with the invention of newer and better drugs to treat HIV, the occurrence of AIDS associated dementia is declining.

All types of dementia involve the following mental decline:

- Memory loss that is severe enough to interfere with daily activities and occurs from a higher level. This means that the person did not always have a poor memory.
- Moodiness - since parts of the brain that control emotion become damaged. Moods may also be affected by fear and anxiety because the patient becomes frightened about what is happening to him.
- Communicative difficulties where the person finds it more difficult to speak, read and/or write. As the dementia progresses, the patient’s ability to carry out everyday tasks
diminishes and he may not be able to take care of himself.

There are two types of dementia:

- **Reversible**: Caused by drugs, depression, infection, brain tumors, head injury, etc. It goes away or will improve with treatment.

- **Irreversible**: This type gets progressively worse and cannot be cured.

There are two main categories of dementia:

- **Cortical dementia** is where the cerebral cortex is affected. This is the outer layer of the brain. The cerebral cortex is vital for cognitive processes, such as language and memory. Alzheimer’s disease is a form of cortical dementia.

- **Subcortical dementia** is where a part of the brain beneath the cortex becomes affected or damaged. Language and memory are not usually affected. The person will usually experience changes in his personality and his thinking may slow down. His attention span may also be shortened. Dementias, which sometimes result from Parkinson’s disease, are subcortical dementias, as are those caused by AIDS and Huntington’s disease.

  *A patient with multi infarct dementia will have both the cortical and subcortical parts of the brain affected or damaged.

**Mild Cognitive Impairment** starts by affecting the person’s memory. However, at that point in time, the memory loss is not significant enough to interfere with the activities of daily living. Family members or friends may be aware of the person’s changing memory, but no diagnosis can be made at that time and they will likely not be diagnosed as having dementia. The problem is that patients with MCI have an increased risk for developing Alzheimer’s disease sometime in the future. This does not mean, however, that everyone who has MCI will progress to Alzheimer’s or another type of dementia.

The most common form of dementia is **Alzheimer’s disease**. Forgetfulness is usually the first symptom exhibited and begins to affect everything in the person’s daily life. Fifty to seventy percent of all dementia cases are related to Alzheimer’s. What occurs is that the chemistry and structure of the brain changes causing the brain cells to die prematurely. When there is an increase in the cells being damaged and destroyed, the disease becomes worse. It is suspected that plaques and tangles, abnormal microscopic structures, cause this to happen. Other symptoms that occur may include confusion, difficulty with organization, inability to express thoughts, changes in behavior and/or personality, misplacing things, and getting lost in familiar places.

The second most common type of dementia is called **Vascular Dementia**. This is when someone has problems with their blood vessels (veins and arteries). This usually indicates that the person is having a stroke or associated vascular problems. Brain cells will die if the supply of oxygen rich blood is undermined in any way. When clots lock the blood flow to certain parts of the
brain, the nerve cells become deprived of food and oxygen. The symptoms may appear suddenly or gradually. A major stroke will cause symptoms to appear suddenly while a series of mini strokes will not. If it develops very soon after a major stroke, it may be called “post stroke dementia.” Depending upon which regions of the brain are involved, the symptoms will vary. Forgetfulness isn’t always a prominent symptom. It depends upon whether or not the memory areas are affected. Other common symptoms may include difficulty focusing attention and/or confusion. The decline may be gradual and over a period of time there will be a change in the person’s ability to function. Sometimes, a history of heart attacks may cause this type of dementia to occur.

In **Mixed Dementia**, Alzheimer’s disease and vascular dementia occur at the same time. Some scientists believe that mixed dementia is developing more often than was thought, and as people age, it may become even more common. This belief is based on autopsies showing that the brains of up to 45 percent of people with dementia also have signs of Alzheimer’s and vascular disease. Some experts suspect mixed dementia as a diagnosis when a person has evidence of cardiovascular disease and dementia symptoms that progressively get worse.

Any metabolic abnormality such as decreased thyroid function can result in an apathy or depression that might mimic dementia symptoms. Hypoglycemia (decreased sugar in the bloodstream) may be the cause of confusion or personality changes and pernicious anemia may also cause cognitive changes. Depression may cause confusion, apathy and forgetfulness and this is also sometimes mistaken for dementia.

**Diagnosing dementia:**

The following tests are usually used in diagnosing dementia:

- AMTS (Abbreviated Mental Test Score) indicates that a score lower than 6 out of 10 suggests a need for further evaluation.
- MMSE (Mini Mental State Examination) indicates that a score lower than 24 out of 30 suggests a need for further evaluation.
- 3MS (Modified Mini Mental State Examination)
- CASI (Cognitive Abilities Screening Instrument).

The score must be interpreted in context with his socio-economic, educational and cultural background. The tester must also factor in the patient’s present physical and mental state, and whether or not the patient suffers from depression or is in great pain.

**治tting dementia:**

Basically, dementia is incurable. There are treatments that may slow it down in the early stages. Cognitive and behavioral therapies may be useful and some studies have shown that music therapy helps patients who have dementia. Health authorities around the world have become concerned regarding using anti-psychotic drugs for treatment. Researchers from King’s College in London reported the following in the journal: Nature Reviews/Drug discovery, October 2012:
• Calcium channel inhibitors that are used for the treatment of hypertension may considerably reduce the risk of dementia.
• Diabetic medications activate the brain and inhibit the formation of plaques.
• Certain drugs used for psoriasis may alter the way proteins connect to dementia structure.
• There may also be benefits from specific antibiotics that usually treat acne.
• Beta-blockers may reduce the risk of dementia per scientists from Pacific health Research and Education Institute in Honolulu. They found that in autopsies of elderly males, those who had between taking beta blockers, normally prescribed for hypertension and heart conditions, were less likely to have brain changes linked to Alzheimer’s and other types of dementia.

Cost for treating dementia:

A study conducted by the RAND Corporation reported in New England Journal of Medicine reported that caring for Americans with dementia is costing $157 billion annually, more than the treatments for cancer and heart disease. The bulk of the cost is not medications or other medical treatments, but the actual caring for patients either at home or in nursing homes.

Caring for a person with dementia poses many challenges for families and caregivers. When the dementia is associated with Alzheimer’s, it becomes more difficult for the person to remember things, think clearly, communicate with others or take care of himself/herself. Also, the dementia may cause mood swings or even change a person’s entire personality and behavior.

There are certain strategies that can be useful for healthcare workers or family when caring for a person with this behavior:

1. Set a positive mood for interaction. Attitude and body language communicate one’s feelings and thoughts stronger than using words. Speak in a pleasant and respectful manner. Use facial expressions, tone of voice and physical touch in order to help convey the message.
2. Get the person’s attention. Limit distractions and noise. Use nonverbal cues and touch to help keep the patient focused.
3. State the message clearly. Use simple words and sentences. Speak slowly, distinctly and in a reassuring tone.
4. Ask simple, answerable questions. Ask one question at a time. Ask questions that may be answered “yes” or “no.”
5. Listen with ears, eyes and heart. Be patient in waiting for the reply. When the patient is struggling for an answer, suggest words. Always strive to listen for the meaning and feelings that underlie the words.
6. Break down activities into a series of steps. This makes many tasks much more manageable. Use visual clues.
7. Respond with affection and reassurance. This is because people with dementia often feel confused, anxious and unsure of themselves.

Other strategies for dealing with agitation will include:
1. Reduce caffeine intake, sugar and junk food.
2. Reduce noise, clutter or the number of persons in the room.
3. Maintain structure by keeping the same routine. Keep object and furniture in the same place.
4. Try gentle touch, soothing music, reading or walks to quell agitation. Speak in a reassuring voice. Do not try to restrain the person during a period of agitation.
5. Keep dangerous objects out of reach.
6. Allow the person to do as much for himself/herself as possible.
7. Acknowledge the confused person’s anger over the loss of control in his life. Tell him you understand his frustration.
8. Distract the person with a snack or an activity. Allow him to forget the troubling incident.

INSIDE THE BRAIN:

Scientists continue to unravel the complex brain changes involved in the onset and progression of Alzheimer’s disease. It is thought that damage to the brain starts 10 years or more before memory and other cognitive problems become evident. During this stage, people appear to be symptom-free, but toxic changes are taking place in the brain. Abnormal deposits of proteins form amyloid plaques and tau tangles throughout the brain. Once healthy neurons stop functioning, lose connections with other neurons and die. The damage initially appears to take place in the hippocampus, the part of the brain that is essential in forming memories. As more neurons die, additional parts of the brain become affected. By the final stage of Alzheimer’s, damage is widespread, and brain tissue has shrunk significantly.

Definitions:

*Amyloid plaques*, which are made up of fragments of a protein called beta-amyloid peptide mixed with a collection of additional proteins, remnants of neurons and bits and pieces of other nerve cells.

*Neurofibrillary tangles*, found inside neurons, are abnormal collections of a protein called tau. Normal tau is required for healthy neurons. However, with Alzheimer’s disease, tau clumps together. As a result, neurons fail to function normally and eventually die.

The brain weighs about three pounds and is the most powerful and complex organ in the body, affecting all aspects of our daily lives. There are three main parts of the brain:

- The cerebrum controls movement, remembering, thinking, problem solving and feeling. It fills up most of the skull.
- The cerebellum is in charge of balance and coordination and is located under the cerebrum, at the back of the head.
- The brain stem, which is vitally important to the brain, is located in front of the cerebellum, but under the cerebrum. It connects the brain to the spinal cord and controls
automatic function such as breathing, digestion, heart rate and blood pressure.

California researchers have solved one important mystery regarding how Alzheimer's disease operates. Their discovery of a link between the illness and an overactive enzyme could eventually lead to a way to prevent the disease. Scientists at the Scripps Research Institute in California have established a connection between Alzheimer's and the over-activation of an enzyme dubbed AMPK. The lead, led by Professor Franck Polleux, published its findings in the journal Neuron. After the California researchers blocked AMPK in mouse models, neurons did not show the loss of synapses typically found in the early phase of Alzheimer’s. Their discovery highlights the potential of developing new therapies to target factors that cause AMPK over-activation in human brains.

Researchers have long known that small collections of amyloid beta, a protein, can cause early stage patients to start to lose synapses, neuron-to-neuron points of connection. What they haven’t been able to figure out is specifically how the process unfolds. Dr. Polleux began to investigate whether an interaction involving amyloid beta and a modification of a protein known as tau with AMPK could cause brain damage in Alzheimer’s patients. One of the California scientists discovered that a calcium influx into neurons jump-starts an enzyme known as CAMKK2, which is believed to be the main AMPK instigator in neurons.

Not only do our bodies change with age, so do our brains. Our thinking becomes slower and, as stated before, we may have problems with remembering. But when it becomes serious and interferes with our lives, such as in extreme confusion and other major changes in how our minds work, it is not considered to be normal.

There are approximately 100 billion nerve cells or neurons in our brain. Each has a cell body, an axon, and many dendrites. The cell body contains a nucleus, which controls much of the cell’s activities. The cell body also contains other structures, called organelles, that perform specific tasks. In order to form networks, each nerve cell has to communicate with many others. Some of these nerve cell networks are involved in the thinking, learning and remembering processes. Others are in charge of our sight, smell and hearing abilities. Others regulate our muscular activity.

Brain cells take in supplies, generate energy and help to get rid of any waste. The cells process and store information. This requires coordination and large amounts of fuel and oxygen. But in Alzheimer’s disease, this process does not continue to work. Damage starts and spreads; the cells lose their ability to do what they are supposed to do and eventually they die.

Plaques and tangles are the structures that we assume damage and kill the nerve cells. They are abnormalities in the brain. The plaques build up between the nerve cells and the tangles form inside the dying cells. Plaques and tangles are normally associated with the aging process, but with Alzheimer’s, there is much more development in these structures. They start in the learning and memory areas and then spread to other regions of the brain. It is believed by experts that somehow these structures block the communication among the nerve cells and thereby disrupt activities that are needed by the cells in order to survive.
Nerve cells are formed during fetal life and for a short time after birth. Unlike most cells, which have a fairly short lifespan, neurons in the brain live a long time. These cells can live for up to 100 years or longer. To stay healthy, living neurons must constantly maintain and repair themselves. In an adult, when neurons die because of disease or injury, they are not usually replaced. Research, however, shows that in a few brain regions, new neurons can be generated, even in the old brain.

As changes take place, a person having Alzheimer’s disease will begin to advance through all the stages of the disease.

STAGES OF ALZHEIMER’S:

The disease isn’t an immediate descent into forgetfulness. It is a progressive decline in cognitive function that erodes memory and reduces the ability to perform tasks over a period of several years. Because of the different stages, it is easier for the patients and their families to plan for future care. Each of the stages includes symptoms that are typical as the disease advances.

The stages follow the following progression:

* Stage 1 (Absence of Impairment)
  There are no problems with memory, orientation, judgment, communication, or daily activities. There is normal adult functioning.

* Stage 2 (Minimal Impairment)
  Some lapses in memory or other cognitive problems may occur but are usually not evident to family or friends. At this point, a medical exam would not reveal any problems either.

* Stage 3 (Noticeable Cognitive Decline)
  People close to the person begin to recognize mild changes in memory, communication patterns or behavior. There might be a diagnosis of early stage –mild Alzheimer’s disease, but this is not always true. Symptoms in this stage will include:
  - problems producing people’s names or the right words for objects
  - noticeable difficulty functioning in employment or social settings
  - forgetting material that has just been read
  - misplacing important objects with increasing frequency
  - decrease in planning or organizational skills
  - short-term memory impairment
  - intact long-term memory
  - feeling moody, depressed or anxious

* Stage 4 (Early-stage/Mild Alzheimer’s)
  Cognitive decline is more evident. The person may become more forgetful of
recent events or personal details. Other problems include impaired mathematical ability, a diminished ability to carry out complex tasks, moodiness and social withdrawal.

Typically, early or mild Alzheimer’s can last about 2-4 years before progressing to the middle or moderate stage

* Stage 5 (Middle-Stage/Moderate Alzheimer’s)
  Some assistance with daily tasks is now required. Problems with memory and thinking are quite noticeable, including symptoms such as:
  - an inability to recall one’s own contact information or key details about one’s history
  - disorientation to time and/or place
  - decreased judgment and skills in regard to personal care
  - increase in agitation
  - suspicious
  - decline in grooming

Even though symptoms are worsening, people in this stage usually still know their own name and the names of key family members. They can eat and use the bathroom without assistance.

* Stage 6 (Middle-Stage/Moderate to Late-Stage/Severe Alzheimer’s)
  This is often the most difficult stage for caregivers because it is characterized by personality and behavior changes. In addition, memory continues to decline and assistance is required for most daily activities. The most common symptoms associated with this stage include:
  - reduced awareness of one’s surroundings and of recent events
  - problems recognizing one’s spouse and other close family members, although faces are still distinguished between familiar and unfamiliar
  - sundowning, which is increased restlessness and agitation in the late afternoon and evening
  - difficulty using the bathroom independently
  - bowel and bladder incontinence
  - suspicion
  - repetitive behavior
  - wandering

* Stage 7 (Late-Stage/Severe Alzheimer’s)
  In the final stage, it is usually no longer possible to respond to the surrounding environment. The person may be able to speak words or short phrases, but communication is extremely limited. Basic functions begin to shut down, such as motor coordination and the ability to swallow. Total care is required around the clock.
  Common symptoms are:
  - problems with eating and swallowing
  - becoming chair or bed bound
  - Risks to immune system and increased susceptibility to infections
- Immobility; difficulty walking and moving
- Loss of ability to communicate through words
- Loss of facial expressions, including the ability to smile

Although the stages provide a blueprint for the progression of Alzheimer’s symptoms, not everyone advances through the stages similarly. The stages can vary from person to person. One person’s decline may be slower or steadier than another’s. The patient may seem to be in two or more stages at once.

Generally, death will occur between four to six years after the initial diagnosis, but the actual duration of the disease may vary from three to twenty years. The span is approximately seven to ten years when it eventually affects almost all brain functions. The patients usually die of a medical complication, such as pneumonia or the flu. But, even with no other complications, the disease itself may be fatal

SYMPTOMS/WARNING SIGNS:

According to experts, common early signs of Alzheimer’s disease or other dementias include:

1. **Memory loss**: forgetting recently learned information. Important dates, experiences or events that interfere with daily life may be forgotten; however, older memories might seem unaffected. It is common for anyone to forget some details from a recent event or conversation, but be able to recall them later. People having dementia might forget the entire thing. They might ask the same information repeatedly, relying on reminder notes or family members for things they used to be able to do on their own.

2. **Repetition**: Very often, no matter how many times they’re answered, they will repeat the same questions. They may repeat stories, even word for word.

3. **Challenges in planning or solving problems**: They may no longer have the ability to develop and follow a plan or work with numbers. They may have trouble keeping track of monthly bills and it may take much longer to concentrate and do what they had been doing previously.

4. **Difficulty completing familiar tasks at home, work or leisure**: Now, even completing daily tasks becomes increasingly more difficult. Driving to a familiar location may cause confusion, or even remembering the rules of a favorite game.

5. **Language problems**: Everyone struggles to remember a word occasionally. People with dementia can have profound problems remembering even basic words. Their way of speaking may become contorted and hard to follow.

6. **Personality changes**: There may be sudden mood swings causing them to become
emotional — upset or angry — for no particular reason. They might become withdrawn and suspicious of family members or stop doing things they usually enjoy. This is a significant change. Their confusion, suspiciousness, depression, fearfulness or anxiety become prominent and they may be upset easily in any situation.

7. Disorientation and confusion: They may get lost in their own neighborhoods, or in places they know very well. They may have trouble completing basic and familiar tasks, like cooking dinner or shaving. They may lose track of dates, seasons and the passage of time. If something doesn’t happen immediately, they may have trouble understanding it. Sometimes they even forget where they are or how they got there.

8. Lack of hygiene: Sometimes this is the most obvious sign of Alzheimer’s disease. People who have dressed smartly every day of their lives might start wearing stained clothing or stop bathing.

9. Odd behavior: Though it is common for everyone to misplace a key or other objects from time to time, those with dementias are prone to placing objects in odd and wholly inappropriate places. They might put a toothbrush in the refrigerator or milk in the cabinet under the sink.

10. Trouble understanding visual images and spatial relationships: Vision problems might be a sign of Alzheimer’s for some people. Difficulty in reading may occur, as well as judging distance and determining color or contrast. Perception may be off, they may pass a mirror, not recognize themselves and think someone else is in the room.

11. New problems with words in speaking or writing: It may become difficult to follow a conversation or join in. They may be in the middle of a conversation, have to stop, and have no idea how to continue. There may be trouble with finding the right words and they may call things by the wrong name.

12. Misplacing things and losing the ability to retrace steps: They may start to put things in unusual places. They may start losing items and not be able to retrace their steps to find them. They may even accuse others of stealing from them. This may occur more and more as time progresses.

13. Decreased or poor judgment: Judgment or decision-making may start to become a problem. They may use poor judgment when dealing with money, and may give either large or small amounts to sales people. They may pay less attention to their own grooming, and they may not keep themselves clean.

14. Withdrawal from work or social activities: An Alzheimer’s patient may begin to remove themselves from hobbies, social activities, work projects or sports.
Alzheimer’s Disease versus normal age-related memory changes:

<table>
<thead>
<tr>
<th>Signs of Alzheimer’s</th>
<th>Typical age-related memory changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor judgment and decision making</td>
<td>Making a bad decision once in awhile</td>
</tr>
<tr>
<td>Inability to manage a budget</td>
<td>Missing a monthly payment</td>
</tr>
<tr>
<td>Losing track of the date or the season</td>
<td>Forgetting what day it is and remembering later</td>
</tr>
<tr>
<td>Difficulty having a conversation</td>
<td>Sometimes forgetting which word to use</td>
</tr>
<tr>
<td>Misplacing things and being unable to retrace steps to find them</td>
<td>Losing things from time to time</td>
</tr>
</tbody>
</table>

SEX DIFFERENCE IN THE DEVELOPMENT OF THE DISEASE:

According to a study presented at the Radiological Society of North America 98th Scientific Assembly and Annual Meeting, Alzheimer’s disease produces a different pattern of gray matter loss in men and women. Dr. Maria Vittoria Spampinato, from the Medical University of South Carolina in Charleston indicated that brain atrophy begins sooner in women than in men, but that their cognitive decline is less rapid. She stated the following to the Medscape Medical News:

“The men and women in this study were very similar clinically and were at the same stage of disease. However, in the men, we found a steep brain volume loss at the time of cognitive decline, whereas in the women, volume loss occurred at an earlier stage of cognitive deterioration.” She indicated that women tend to have worse language impairment than men and that women also have an increased risk of developing the disease.

Dr. Spampinato and her team analyzed data on 60 men and 49 women from the Alzheimer’s Disease Neuroimaging Initiative, a multi-institutional study conducted in the U.S. and Canada in order to examine the transition from normal aging to mild cognitive impairment to the disease. The researchers were able to obtain MRI’s of the brains 12 months before the diagnosis of Alzheimer’s disease, at the time of diagnosis and 12 months after the diagnosis. Gray matter volume maps showed greater atrophy in women than in men in the posterior cingulated gyrus at 12 months before diagnosis, and in the bilateral middle temporal gyrus, bilateral cingulated gyrus, left subcallosal gyrus and right insula at the time of diagnosis. There were no significant differences in gray matter volume between men and women at either of these time points. However, women lost volume in the bilateral uncus and men lost volume in the bilateral inferior frontal lobe and right uncus in the 12 months before their diagnosis.

A difference was also seen during the 12 months after being diagnosed. In women, loss of gray matter volume was greater in the left hippocampus, bilateral temporal lobe and right parietal lobe. In men, loss of gray matter volume was greater in the bilateral hippocampus, right
parahippocampal gyrus, left insula, and in the left caudate, left frontal and left parietal lobes. Dr. Spampinato also stated: “Atrophy develops at an earlier stage of cognitive deterioration in women than in men, but these differences eventually disappear because greater brain volume loss occurs in men during the progression from mild cognitive impairment to Alzheimer’s disease.”

Dr. Jeffrey R. Petrella, director of the Alzheimer Disease Imaging Research Lab at Duke University Medical Center in Durham, North Carolina, stated: “Women seemed to have greater atrophy before and at the time of diagnosis, yet men were worse off cognitively. This suggests that higher cognitive reserve in women may render them more resistant, and therefore less symptomatic for a given disease burden, compared with men. Cognitive reserve is enhanced by higher levels of mental, physical and social engagement in everyday life.”

CAUSES/RISK FACTORS:

Most cases of early-onset Alzheimer’s disease are caused by gene mutations that can be passed from parent to child. It has been found through research that this form of the disorder can result from mutations in one of three genes: APP, PSEN1 or PSEN2. When any of these genes is altered, large amounts of a toxic protein fragment called amyloid beta peptide are produced in the brain. This peptide can build up in the brain to form clumps (amyloid plaques). These plaques are characteristic of Alzheimer’s disease. A buildup of toxic amyloid beta peptide and amyloid plaques may lead to the death of nerve cells and the progressive signs and symptoms of this disorder.

The early-onset form of the disease is inherited in an autosomal dominant pattern. This means that one copy of the altered gene in each cell is sufficient to cause the disorder. In most cases, the affected person will inherit the altered gene from one affected parent.

There is also evidence that indicates that people with Down syndrome have an increased risk of developing Alzheimer’s disease. Down syndrome occurs when a person is born with an extra copy of chromosome 21 in each cell. As a result, these people have three copies of many genes in each cell, including the APP gene, instead of the normal two copies. Though the connection between Down syndrome and Alzheimer’s disease is unclear, the production of excess amyloid beta peptide in cells may account for the increased risk.

The causes of late-onset Alzheimer’s disease are less clear. The late-onset form does not clearly run in families, although clusters of cases have been reported in some families. This disorder is probably related to variations in one or more genes in combination with lifestyle and environmental factors. APOE is a gene that has been studied extensively as a risk factor for developing the disorder. Many additional genes are presently being studied by researchers who question how they may play a role in the disease risk.

The inheritance pattern of late-onset Alzheimer’s disease remains more uncertain. Those who inherit one copy of the APOE e4 allele have an increased chance of developing the disease. Those who inherit two copies of the allele are at a greater risk. It is important to understand that someone with the APOE e4 allele inherits an increased risk for developing the disease, not the
disease itself. Not all people with Alzheimer’s disease have the e4 allele, and not all people who have the e4 allele will develop the disorder.

There are other risk factors that have been identified as reasons for the likelihood of developing Alzheimer’s disease:

- **Age**: plays an important role: Even though there can be early onset of the disease, as people become 65 and older, there is a greater chance that the disease will strike. It then doubles every 5 years until after the age of 85, when the risk becomes about 50%.

- **Family**: A strong risk factor is having a known family history of the disease. If the disease runs in families, it is usually genetics that plays a role, as well as environmental factors.

There is also a new gene that has been linked to late-onset Alzheimer’s known as SORL1. Aside from APOE, this is the first gene to be linked to the common form of the disease. Some variations of this gene may increase the production of amyloid-beta fragments that cause plaques in the brain. These plaques are one of the noted hallmarks of the disease.

(2) Deterministic genes directly cause a disease, guaranteeing that anyone who inherits them will develop the disorder; however these rare genes have only been found in a few hundred extended families worldwide. When the disease is caused by deterministic genes, it is called “familial Alzheimer’s disease” and many family members in multiple generations become affected. This usually accounts for less than 5 percent of cases. Genetic tests are available for both APOE-e4 and the rare genes that directly cause the disease. Although routine genetic testing is not recommended, it may be appropriate in some cases of early-onset Alzheimer’s. The problem is that early testing might provide certain results and this may cause emotional consequences. Affected families are usually well aware of their familial history and do not wish to know their genetic status. Even without the genetic testing – the disease is usually diagnosed by physicians with 90% accuracy. The genetic testing is controversial and should be undertaken only after meeting with a physician and discussing the benefits and risks.

Other genes are also being studied at present. These include:

- **Ubiquitin 1 (UBQLN1)**. This gene seems to interact with both the PS1 and PS2 genes and may also be associated with the breakdown of proteins in the brain.

- **Angiotensin-converting enzyme (ACE)**. There is a possibility that one form of this gene may cause someone to be at higher risk of acquiring the disease, but there have been mixed study results and so this gene remains questionable.

- **Apolipoprotein A1 (APOA1)**. As in APOE, the gene controls the production of a protein that is used to carry cholesterol in the blood. It is being studied because of the supposed link between elevated cholesterol levels and the risk of Alzheimer’s.

Studying genetics is done in the hopes of finding clues about how to combat or control the disease. It may assist in finding new ways to treat or prevent the disease. The Alzheimer’s
Association position on genetic testing includes 5 principles that are intended to prevent the genetic discrimination. These current tests would only apply to early-onset genes and to reliable tests that may eventually be developed to predict late-onset Alzheimer’s:

- The presence of a gene associated with Alzheimer’s disease does not qualify an individual for disability-related benefits. Disability support should be based on functional criteria rather than a genetic test.
- Because of possible social consequences or discrimination, anonymous testing should be available. In that way it would make the act of and results of genetic testing invisible on someone’s medical records.

There are certain things we cannot change: family history, age and heredity. But, there may be some risk factors that we can influence.

- The brain cells use about 20% of the food and oxygen that is carried by the blood. The brain is nourished by the blood vessels. If the heart or blood vessels are damaged, there is a greater risk of developing Alzheimer’s or vascular dementia. Some research indicated that the conditions that may damage the heart or blood vessels are hypertension, heart disease, stroke, diabetes and increased cholesterol levels. Other research states that there is little evidence to indicate that these conditions may cause Alzheimer’s. While there are clinical trials presently that are attempting to determine if cholesterol lowering drugs can either delay or prevent the disease, it also appears that some cholesterol lowering drugs may instead increase the risk of Alzheimer’s. More research is required before it can specifically be shown that there is a connection between the two.

- Research has shown that someone who sustained a head injury could be at future risk for Alzheimer’s disease. Specifically, it would depend upon the age at the time of the head injury, how severe the injury was and also the genetic makeup. Any head injury may cause brain damage. Brain damage may cause dementia. Since dementia occurs when there is a decline in two or more thinking skills, when dementia occurs from a head injury, it is usually a stable condition and does not become worse with time. Research has indicated that having a head injury early in life does not usually increase the risk of getting Alzheimer’s later in life. However, a head injury that occurs after the age of 50 may, in fact, increase the risk.

- Today’s obesity epidemic may be tomorrow’s Alzheimer’s epidemic. The high insulin levels seen in obese people may mean a high risk of Alzheimer’s disease. Diabetes is also thought to be a strong risk factor in acquiring dementias like Alzheimer’s. Diabetes becomes more common as age progresses, and Type 2 diabetes often occurs in people who are overweight and spend little time exercising. Abnormal insulin and blood sugar levels have been thought to promote brain damage that causes dementia. When blood sugar is elevated, the blood vessels become damaged. This may first be evident in the tiny vessels of the eyes and feet, but the brain may also become affected. Then, small vessel damage in the brain may contribute to vascular dementia. Vascular dementia may deplete cognitive reserve and then the symptoms of Alzheimer’s would appear earlier.
• It has also been found that some Alzheimer's patients experience an increase in memory while they are using a nasal spray that contains insulin. The spray bypasses the bloodstream and delivers the insulin directly to the brain. However, excessive insulin may, conversely, cause an increased production of beta-amyloid. An excess amount of insulin may be responsible for brain cells failure to clear the beta-amyloid. Insulin resistance may be countered by weight loss and exercise.

DIAGNOSIS:

Although the onset of Alzheimer's disease cannot yet be stopped or reversed, an early diagnosis allows people with dementia and their families the following:

1. A better chance of benefiting from treatment
2. More time to plan for the future
3. Lessened anxieties about unknown problems
4. Increased chances of participating in ongoing studies
5. Time to develop a relationship with doctors and care partners
6. Benefit from care and support services, making it easier for them and their family to manage the disease.

The Alzheimer’s Association and the National Institute on Aging (NIH) have jointly issued four new criteria and guidelines to diagnose the disease. These new criteria update, refine and broaden previous widely used guidelines jointly issued by the Alzheimer’s Association and the NIH over the past 30 years.

By incorporating new scientific insights and technological advances, the new guidelines aim to improve current diagnosis, strengthen autopsy reporting of Alzheimer’s brain changes and establish a research agenda for future progress in earlier detection and even greater diagnostic accuracy.

Three of the new guidelines focus on 3 stages of Alzheimer’s disease: (1) dementia due to Alzheimer’s, (2) mild cognitive impairment due to Alzheimer’s and (3) preclinical (pre-symptomatic) Alzheimer’s. The fourth guideline updates criteria for documenting and reporting Alzheimer’s related changes observed during an autopsy.

The guidelines on preclinical Alzheimer’s define this condition as a newly recognized stage of the disease. In a “preclinical” disease stage, key biological changes are under way in the body, but the disease has not yet caused any noticeable clinical symptoms. Current scientific evidence suggests that in preclinical Alzheimer’s, brain changes caused by the disease may begin years or even decades before symptoms such as memory loss and confusion occur. The guidelines are not an immediate call for diagnosis of this preclinical stage and do not include specific diagnostic criteria. Instead, they propose a research agenda to identify biomarkers that may signal when these pre-symptomatic brain changes begin.
Biomarkers are benchmarks in the body that can be reliably measured to indicate the presence or absence of a disease, or the likelihood of later developing a disease. The strongest biomarker candidates for Alzheimer’s disease include brain-imaging studies using magnetic resonance imaging (MRI) or positron emission tomography (PET) and proteins in cerebrospinal fluid (CSF). If researchers are able to succeed in developing treatments that can slow or stop the progression of the disease, identification of the newly defined preclinical stage of Alzheimer’s will gain importance.

As of now, there are certain combinations of tests that assist in diagnosing the disease.

- Clock drawing test (CDT)
- Mini-Mental State Examination (MMSE)
- Functional Assessment Staging (FAST)
- Medical and family history
- Routine physical examination, including blood and urine tests
- Testing of physical sensation, sense of balance and other functions that are controlled by the central nervous system
- Brain Scan
- Psychiatric evaluation
- Interviews with family members to assess behavior changes in the patient

The information received from tests, which have an accuracy rate of about 90%, will assist in determining if the person actually has Alzheimer’s.

To detect when a patient with Alzheimer’s also is suffering from depression, a physician will look for non-verbal clues as well as information from families.

- Appearing sad, hopeless or discouraged
- Having a decreased response to social contacts
- Withdrawing socially
- Eating more or less than usual
- Sleeping more or less than usual
- Appearing lethargic or agitated
- Becoming irritable
- Showing loss or energy or fatigue
- Feeling worthless or hopeless

**TREATMENT:**

As of now, there is no medication that can slow the progression of the disease. However, certain FDA approved medications are being used to treat the symptoms. These drugs can help people carry out the activities of daily living by maintaining thinking, memory or speaking skills. They can also help with some of the behavior and personality changes associated with the disease. But … they do not stop or reverse the condition and appear to help people for only a few months to a few years.
Since there is no cure at present, the chief goals of treatment are to:

a. maintain quality of life
b. maximize function in daily activities
c. enhance cognition, mood and behavior
d. foster a safe environment
e. promote social engagement, as appropriate

More and more data suggest that treatment for Alzheimer's disease may be more effective if started early, even before the symptoms appear. Also, recent clinical trials of treatments for mild to moderate Alzheimer's have failed. This suggests that waiting to treat the disease in these stages may be too late. Once the degenerative process has begun, it cannot be stopped.

Prior studies of Alzheimer's patients showed they have lower levels of amyloid than normal, which had been attributed to amyloid accumulating in the brain. Because of this information, scientists believe that the disease was explained by the progressive build-up of amyloid in plaques that cause brain cells to die. Then, this would lead to symptoms of Alzheimer's. The new study suggests that there are early changes in the brain even before the amyloid plaques appear. Inherited early-onset Alzheimer's may be caused by the body producing too much amyloid. But, late-onset Alzheimer's may be the result of the body's inability to clear amyloid from the brain. Therefore, researchers are now focusing on family members ages 7-17 in order to determine if they can detect any brain differences even earlier.

*Medical Treatments for cognitive symptoms:*

Because the progression of the disease is an unknown, it is not always easy to tell if the drugs are actually providing any benefit. If the drug is stopped and the person has an immediate decline in abilities, chances are the drug is beneficial and should be re-started as soon as possible. Meanwhile, slowing down the progression of the disease is the main benefit these drugs have to offer. Even when the improvements are temporary, it extends quality time.

The disease changes the brain in many ways. One of the changes is responsible for causing a decrease in the levels of acetylcholine. This is a chemical messenger that controls memory, alertness, judgment and thought processes. The cholinesterase inhibitors seem to improve the effectiveness of the acetylcholine by increasing the amount of it in the brain or by enhancing the response of the nerve cells. These medications are usually used for early to middle stages of Alzheimer's, but have also been used for moderate to severe Alzheimer's. They work differently on different patients and so the best medication is usually found by trial and error. Some patients suffer side effects, while, others do not. The following medications are most commonly used:

<table>
<thead>
<tr>
<th>Generic</th>
<th>Brand</th>
<th>Approved For</th>
<th>Side Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donepezil</td>
<td>Aricept</td>
<td>All stages</td>
<td>Nausea, vomiting, loss of appetite and increased frequency of bowel movements</td>
</tr>
<tr>
<td>Galantamine</td>
<td>Razadyne</td>
<td>Mild to moderate</td>
<td>Same as above</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Memantine</td>
<td>Namenda</td>
<td>Moderate to severe</td>
<td>Headache, constipation, confusion and dizziness</td>
</tr>
<tr>
<td>Rivastigmine</td>
<td>Exelon</td>
<td>Mild to moderate</td>
<td>Nausea, vomiting, loss of appetite and increased frequency of bowel movements</td>
</tr>
<tr>
<td>Tacrine</td>
<td>Cognex</td>
<td>Mild to moderate</td>
<td>Possible liver damage, nausea and vomiting</td>
</tr>
</tbody>
</table>

*Treatments for behavioral and psychiatric symptoms:*

The use of antipsychotic drugs is continually being questioned. Their effectiveness is not really known and there is evidence indicating that agitation may be reduced; however, a study published in 2006 showed that the medications might not be as effective as previously thought. There was also a warning from the Food and Drug Administration that the antipsychotic drugs could actually, in some cases, be the cause of death in patients with dementia.

Non-drug approaches should always be tried first:

- Recognizing that the person is not just acting mean or ornery, but is having further symptoms of the disease
- Understanding the cause and how the symptoms may relate to the experience of the person who has Alzheimer’s.
- Changing the person’s environment to resolve challenges and obstacles to comfort, security and ease of mind.

Treatable conditions may include:

- Prescription medications may be used for other health problems and the drug side effects or interactions between drugs can sometimes affect behavior.
- As the disease progresses, the patient may have symptoms of other illnesses that can go undetected. Having pain from a urinary tract infection, an earache or sinus infection may lead to restlessness or agitation. Discomfort from a full bladder, constipation or feeling too hot or cold may also be expressed through behavior.
- Uncorrected problems with hearing or vision can contribute to confusion and frustration and cause a sense of isolation.

Situations affecting behavior may include:
• Moving to a new home or a nursing home
• Changes in the environment
• Admission to a hospital
• Being asked to bathe or change clothes
• Fear and fatigue resulting from trying to make sense out of an increasingly confusing world
• Misperceived threats

Possible solutions:

• Monitor personal comfort. Check for pain, hunger, thirst, constipation, full bladder, fatigue, infections and skin irritation. Maintain a comfortable room temperature.
• Do not confront or argue about facts that you know are incorrect. Let the person express their wish and don’t point out their mistake.
• Redirect the person’s attention and try to remain supportive.
• Create a calm environment. Noise, too much background distraction, and, even television, may cause extreme upset to the person.
• Provide privacy and security.
• Use safety locks on doors and gates.
• Make sure there are no guns in the house.

Medications for behavioral symptoms:

Right now, treatments consist of temporarily stabilizing cognitive function. In the future, the hope is that there will be a stronger focus on preventing the disease, not just treating it. That will mean detecting it at its earliest stage and starting treatment long before signs and symptoms appear. If discovered very early, the goal would be that the effects would be reversible. Scientists are also continually studying vaccines that would prevent the disease without producing dangerous side effects, such as brain inflammation.

If non-drug approaches fail, medications may be the only appropriate treatment available, especially if the Alzheimer’s patient has severe symptoms or might be able to harm themselves or others. Most medications are most effective when they are combined with non-drug approaches. The medications should target specific symptoms in order to be able to monitor their effects. It is best to start with a low dose of one drug. Helping one symptom may also help relieve other symptoms.

Taking an antidepressant may not just help the depression; it may also allow the patient to sleep better. Dementia patients become susceptible to serious side effects. This may include CVA and/or increased risk of death from antipsychotic medications. Sometimes these medications may also cause an exacerbation in the symptom it was originally prescribed for. In some cases, some physicians increase rather than decrease the dose and this places the person at a greater risk. The risk and potential benefits of any drug must be carefully analyzed. Using an antipsychotic drug must be considered with extreme caution. In older adults with dementia, the atypical antipsychotics have been associated with an increased risk of stroke and death. THE FDA asks
manufacturers of these drugs to include a “black box” warning about the risks and a reminder that they have not been approved to treat the symptoms of dementia.

Medications that have been commonly used to treat behavioral and psychiatric symptoms of Alzheimer’s disease include the following:

**Antidepressant medications for low mood and irritability:**
- Citalopram (Celexa)
- Fluoxetine (Prozac)
- Paroxetine (Paxil)
- Sertraline (Zoloft)
- Trazodone (Dcyrel)

**Anxiolytics for anxiety, restlessness, verbally disruptive behavior and resistance:**
- Lorazepam (Ativan)
- Oxazepam (Serax)

**Antipsychotic medications for hallucinations, delusions, aggression, agitation, hostility and uncooperativeness:**
- Aripiprazole (Abilify)
- Clozapine (Clozaril)
- Haloperidol (Haldol)
- Olanzapine (Zyprexa)
- Quetiapine (Seroquel)
- Risperidone (Risperdal)
- Ziprasdone (Geodon)

Antipsychotic medications should not be used to sedate someone with dementia. The minimum dosage should be used for the shortest period of time and any adverse side effects must be monitored carefully. Although antipsychotics are used most frequently, some doctors prescribe a seizure medication/mood stabilizer for agitation, such as Carbamazepine (Tegretol) or Divalproex (Depakote).

**NEW INFORMATION:**

There is presently a new ongoing trial study that indicates that scientists have found the first drug that appears to slow the pace of mental decline!!! The drug that is called solanezumab has been shown to stave off memory loss over the course of several years in patients who have mild Alzheimer’s. It appears that the effects (which are not a cure) would not have been clearly noticeable to patients or their families. However, the wider implications of the results have been hailed as “hugely significant” since it is the first time that any medication has slowed the rate at which the disease damages the brain. In the study, it was found that in the 1300 patients with mild dementia, those who took the drug exhibited about 30% slower decline in memory and cognitive tests than those who had taken a placebo during the 18-month trial. Though it was a small number, the result hinted
that the drug could work as long as it was given early enough. The existing drugs help with the symptoms but do nothing to slow down the progression of the disease. The drug is actually an antibody that works by disassembling the building blocks that make up the plaques, slowly causing them to disintegrate.

Dr. Doug Brown, head of research at the Alzheimer’s Society, said “Today’s findings strongly suggest that targeting people in the earliest stages of Alzheimer’s disease with these antibody treatments is the best way to slow or stop Alzheimer’s disease. The drugs are able to reduce the sticky plaques of amyloid that build up in the brain, and now we have seen the first hints that doing this early enough may slow disease progression.”

Even if future trial results are positive, it is likely to be several years before the drug would become available. Another phase-three trial is due to report in 2016 and then the drug would need to go through regulatory approval and would have to be shown to prove that it is sufficiently beneficial to patients. But, now there is some hope!!

**ALTERNATIVE TREATMENTS and THERAPIES:**

There has been minimal research done regarding herbal remedies, vitamins and other dietary supplements to be used as memory enhancers or treatments used to delay or prevent Alzheimer’s Disease. Although some of the remedies may be good candidates, there are also legitimate concerns about using them:

- The effectiveness and safety are unknown. The maker of a dietary supplement is not required to provide the FDA with the evidence on which it bases its claims for safety and effectiveness.
- The purity is unknown, as the FDA has no authority over the supplement production. The manufacturer has to develop and specified amounts.
- There is not an actual routine monitoring of bad reactions, as the manufacturers are not required to report them to the FDA.
- Dietary supplements can have serious interactions with medications that have been prescribed by physicians. Therefore, no one should be taking a supplement unless they first consult their physician.

- Coenzyme Q10 is an antioxidant that occurs naturally in the body. It is needed for normal cell reactions, but the compound has not been studied for its effectiveness in treating Alzheimer’s. At one time, a synthetic version of this compound (idebenone) was tested but did not show any benefit. There is not much known about the dose either, and if too much is taken, there could be harmful effects.
- Coral calcium is a supplement that has been heavily marketed as a cure for Alzheimer’s, cancer and other serious illnesses. It is a form of calcium carbonate that is claimed to have been derived from the shells of formerly living organisms that once made up coral reefs. The only difference from ordinary calcium supplements is that it contains traces of some additional minerals that have been incorporated into other shells by metabolic processes of the animal that formed them. It does not claim to offer any extraordinary
health benefits. The Federal Trade Commission and the Food and Drug Administration have filed formal complaints against the promoters and distributors of coral calcium. The agencies indicate that they are aware of no competent and reliable scientific evidence that supports the exaggerated health claims and therefore such unsupported claims are unlawful.

- Ginkgo biloba is a plant extract. It contains several compounds that may have positive effects on cells that are found within the brain and the body. It is thought to have both antioxidant and anti-inflammatory properties, to protect cell membrane and to regulate neurotransmitter function. However, as a result of a large clinical trial of the National Institute of Health, it showed that it was no better than a placebo in preventing or delaying Alzheimer's disease.

- Omega-3 fatty acids are a type of polyunsaturated fatty acid. It has been linked by research to decrease the risk of heart disease and stroke. The FDA allows supplements and foods to display labels with “a qualified health claim” for two omega-3s called docosahexaenoic acid and eicosapentaenoic acid. The labels are allowed to say “supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease.” The FDA recommends taking no more than a combined total of 3 grams of DHA or EPA a day, with no more than 2 grams from supplements.

***Research has also lined high intake of omega-3s to a possible reduction in risk of dementia or cognitive decline. The chief omega-3 in the brain is DHA. This is found in the fatty membranes that surround nerve cells, especially at the microscopic junctions where the cells connect to one another. In 2009 at the Alzheimer’s Association International Conference on Alzheimer’s disease (AAICAD) two studies found mixed results for the possible benefits of DHA:

- The first study was conducted by the Alzheimer’s disease Cooperative Study. It appeared that participants with mild to moderate Alzheimer’s taking 2 grams of DHA daily reacted no better overall than those who took a placebo. It showed that participants without the APOE-e4 Alzheimer risk gene might have experienced a slight benefit. Results of this study also appeared in the November 3, 2010 issue of the Journal of the American Medical Association.
- The second study, Memory Improvement with DHA (MIDAS) enrolled older adults who had normal age related cognitive decline. Those who took 900 milligrams of DHA daily scored slightly better on a computerized memory test than those receiving the placebo. MIDAS was conducted by Martek Biosciences who is the manufacturer of the DHA that was used in both studies.

Experts are in agreement that more research is needed in order to determine if DHA or any other omega-3 fatty acid can treat or prevent Alzheimer’s disease.

ROLE OF THE NURSE:

In general, most nurses are trained to provide general care and are, for the most part, unfamiliar with how to provide specialized care for Alzheimer’s patients. Yet, when it comes to their role in
providing care for these patients, they have to lead the way, being both care provider and advocate for those suffering from this dreadful disease. The nurse’s role is vital!

It is important that nurses be provided with the skill set that is required to assess patients and recognize the impairments in thinking and functioning unique to each person. There is no general care plan for these patients since each individual case is different and requires individual care plans. It then becomes essential that the nurse recognize complications associated with general care and how the progression of the disease impacts both physical and mental well-being of their patients.

Nurses are usually the first to notice changes in the patient and, therefore, must have the necessary skills to reassess their patients and coordinate possible treatments with other healthcare professionals. Nurses have to have a strong sense of observation. They need to assess the mental abilities of their patients and obtain critical information at times when most patients would consider situations embarrassing or intrusive.

Nurses have a major role in supporting the family, providing them with information and directing them to the services they may need.

The role of nurses in caring for Alzheimer’s patients has to become an area of specialty supported by their nursing associations, care facilities and hospitals. It must be recognized that nurses play a more active role in personal, hand-on care. Quality care must be provided without exception.

When there is a Risk of Injury, the nursing intervention would include the following:

1. Assess the degree of impaired ability of competence, emergence of impulsive behavior and a decrease in visual perception.
2. Help the people closest to identify the risk of hazards that may arise.
3. Eliminate or minimize sources of hazards in the environment
4. Divert attention to a patient when agitated or dangerous behaviors as in getting out of bed by climbing the bars of the bed.

When there is a Disturbed Thought Process, the nursing intervention would include:

1. Assess the level of cognitive disorders such as change to orientation to people, places and times, range, attention, thinking skills.
2. Maintain a nice quiet environment.
3. Face-to-face when talking with patients.
4. Call patient by name.
5. Use a rather low voice and speak slowly to the patient.

REACTION OF FAMILIES:
It is very common for the families of Alzheimer’s patients to have feelings of loss and grief as their life is being changed. The disease is taking away the person that has been known and loved. Watching the different phases may cause the caregivers to feel grief, denial, anger, guilt, sadness and acceptance. These stages don’t usually happen in order. The caregivers may experience different stages as the disease progresses.

Some common experiences in this process include the following:

**Denial:**
- Hoping that the person is not ill
- Expecting the person to improve
- Convincing oneself that the person has not changed
- Attempting to normalize the problematic behaviors

**Anger:**
- Being frustrated with the person
- Resenting the demands of caregiving
- Resenting family members who cannot or will not help provide care
- Feeling abandoned and resenting it

**Guilt:**
- Wondering if you did something to cause the illness
- Regretting your actions after the diagnosis
- Feeling bad when you take a break
- Feeling that you have failed
- Having negative thoughts about the person or wishing that he/she would either go away or die
- Regretting things about your relationship before the diagnosis
- Having unrealistic expectations of yourself

**Sadness:**
- Feeling despair or depression
- Withdrawing from social activities
- Withholding your emotions

**Acceptance:**
- Coming to terms with the diagnosis and with the reality that day to day life will change
- Finding personal meaning in caring for someone who is terminally ill
- Finding pleasure by being with the person in the moment
- Seeing how the grieving process affects your life
- Appreciating the personal growth that comes from surviving loss

**RESEARCH:**
The National Institute of Neurological Disorders and Stroke (NINDS) supports basic and translational research related to Alzheimer’s disease through grants to major medical institutions across the country. Current studies are investigating how the development of beta amyloid plaques damages neurons, and how abnormalities in tau proteins create the characteristic neurofibrillary tangles of the disease. Other research is exploring the impact of risk factors associated with the development of the disease, such as pre-existing problems with blood flow in the blood vessels of the brain. Most significant is the fact that NINDS supports a number of studies that are developing and testing new and novel therapies that are able to relieve the symptoms and potentially lead to a cure.

**SUMMARY:**

Certain strategies, such as watching one’s weight, avoiding tobacco, avoiding excess alcohol, being socially connected and exercising routinely, are suggested in order to keep the brain healthy. Hopefully, this offers protection again developing not only Alzheimer’s, but also, other related diseases.

According to the Alzheimer’s Association, every 68 seconds, someone in the U.S. develops the disease. However, the disease does not just affect the elderly – it is not age exclusive. It is not just the disease of parents and grandparents. It is also the disease of spouses, siblings and children. Alzheimer’s disease is the 6th leading cause of death in the United States and more than 5 million Americans are living with this disease.

Fact: One in three seniors will die because of Alzheimer’s or another dementia. In 2012, 15.4 million caregivers provided more than 17.5 billion hours of unpaid care valued at $216 billion. Nearly 15% of caregivers for people with Alzheimer’s or another dementia are long-distance caregivers. In 2013, Alzheimer’s will cost the nation $203 billion. This number is expected to rise to $1.2 trillion by the year 2050.

The number of Americans with Alzheimer’s disease and other dementias will grow as the United States population of age 65 and older continues to grow. By 2025, the number of people age 65 and older who has Alzheimer’s disease is estimated to reach 7.1 million. That is a 40% increase from the 5 million aged 65 and older currently affected. By 2050, the number of people aged 65 and older with Alzheimer’s disease may almost triple, from 5 million to a projected 13.8 million, barring the development of medical breakthroughs to prevent, slow or stop the disease. While deaths from other diseases are declining, Alzheimer’s disease deaths continue to rise.

The physical, emotional and financial burdens of caring for someone with Alzheimer’s disease can be overwhelming. Family members and other caregivers can wind up exhausted and demoralized by the all-consuming task they have to provide. They lose their own freedom and privacy and they have to sacrifice their own needs. Often, this is without receiving much gratitude or even acknowledgment. Any resentment they feel may be heightened by fear of inheriting the disease and is then compounded by guilt – about their anger, past mistakes, lying to the patient in small ways or even denying the patient’s wishes.
The existence of family problems may be intensified and old family conflicts may be revived. A formerly passive husband or wife may find it difficult to make decisions for the patient. Therefore, caregivers have a higher rate of depression than the actual patient who has Alzheimer’s. Some caregivers join support groups. This is to relieve their own isolation, be able to comfort one another and exchange advice. These groups are organized by local chapters of the Alzheimer’s association (http://www.alz.org).

Most importantly, caregivers must have time to lead their own lives. One way to achieve this is by having respite care, such as housekeepers, home attendants, visiting nurses, day care centers, senior citizen programs, day hospitals and case managers who can coordinate services. Unfortunately, most families don’t know enough about these services or are too proud to seek help — or, worse, cannot afford it.

Usually, the demands become too great for even the most devoted wife, daughter, husband or son. Most people having this disease will usually wind up in a nursing home. Per research, 40% of people who turn 65 will eventually be sent to a nursing home. 25% will stay for at least a year and nearly 10% for 5 years or more. The average age of the 1.5 million patients in these homes is 86. More than 2/3 of these patients are women, who have Alzheimer’s disease and will die within three years. This is mostly due to the fact that families will send their loved one to a nursing home only after their resources are exhausted and the demented person is near death. Sometimes, families wait too long and must be persuaded by outsiders to acknowledge the need. To avoid having to make a hasty decision during a crisis, it is better to start investigating the options as soon as the patient begins to require supervision.

Alzheimer’s Disease and other cognitive disorders not only rob the individuals of their cognitive faculties, but also cause their families to watch helplessly as their loved ones’ memories fade and personalities become altered. Facts conquer fear! The more one knows about the disease, the less likely the family will “fall apart” or feel terrified and helpless.

BIBLIOGRAPHY:

4. 7 Warning Signs of Alzheimer’s.
   http://www.nim.nih.gov/medlineplus/magazine/issues/fall10/articles/fall10_pg20-21
   Accessed 7/30/2015
5. What are Signs of Alzheimer’s Disease?
Times Jan/Feb 2004, pg. 27
Alzheimer's Disease: Are You In There? - Final Exam

60 Questions

1. Alzheimer's disease is a progressive disorder that affects
   A. Loss of memory
   B. Thinking
   C. Behavioral changes
   D. All of the above

2. Alzheimer's disease
   A. Is a normal part of aging
   B. Is not a normal part of aging
   C. Begins rapidly
   D. None of the above

3. How many abnormal lesions clog the brains of people with this disease?
   A. 5
   B. 3
   C. 4
   D. None of the above

4. Alzheimer's disease affects __________ of older Americans
   A. Millions
   B. Thousands
   C. Hundreds
   D. Between 750,000 – 100,000

5. The incidence of Alzheimer's disease
   A. Decreases with age
   B. Increases with age
   C. Remains the same with age
   D. Has no bearing on age

6. The origin of the term 'Alzheimer's' dates back to
   A. 1885
   B. 1889
   C. 1906
   D. 1920

7. By 2050 the number of people suffering with this disease is projected to
   A. Rise to 10 million
   B. Rise to 14 million
   C. Rise to 20 million
   D. Decrease to 5 million

8. The best known factor for developing the disease is
   A. Age
   B. Having a prior Bi-polar diagnosis
   C. High levels of vitamin folate
   D. Being a Caucasian male
9. There are _____ stages of Alzheimer's dementia
   A. 4
   B. 6
   C. 7
   D. Unknown

10. Dementia affects an individual's ability to
   A. Remember
   B. Reason
   C. Communicate
   D. All of the above

11. The most common form of dementia is
   A. Alzheimer's disease
   B. Infection
   C. Medication interactions
   D. Thyroid problems

12. A reversible condition that could be mistaken for dementia is
   A. Depression
   B. Infection
   C. Medication interactions
   D. All of the above

13. Dementia is
   A. A disease by itself
   B. Not a disease by itself
   C. Caused by one condition
   D. Curable

14. Cortical dementia is affected by
   A. Cerebral cortex
   B. Hypothalamus
   C. Brain stem
   D. None of the above

15. All types of dementia involve
   A. Severe memory loss
   B. Moodiness
   C. Communicative difficulties
   D. All of the above

16. A patient with multi infarct dementia will have
   A. Cortical part of brain affected or damaged
   B. Subcortical parts of the brain affected or damaged
   C. A and b
   D. Brain stem affected or damaged

17. The second most common type of dementia is
   A. Vascular dementia
   B. Motor dementia
   C. Neurological dementia
18. Vascular dementia causes problems with
   A. Breathing
   B. Blood vessels
   C. Talking
   D. Swimming

19. Mixed dementia is
   A. Combination of CVA and heart attack
   B. Combination of Alzheimer's and stroke
   C. Combination of hypoglycemia and depression
   D. Combination of Alzheimer's disease and vascular dementia

20. Dementia may be diagnosed by
   A. Abbreviated Mental Test Score
   B. Modified Mini Mental State Examination
   C. Cognitive Abilities Screening Instrument
   D. All of the above

21. Some metabolic abnormalities such as ______ can mimic dementia symptoms
   A. Decreased thyroid function
   B. Hyperglycemia
   C. Depression
   D. None of the above

22. When dementia is associated with Alzheimer's disease
   A. It becomes easier for the person to remember things
   B. It becomes more difficult for the person to remember things
   C. It has no affect either way
   D. None of the above

23. Dementia
   A. Is incurable
   B. Can be slowed down
   C. A and b
   D. May be caused by psoriasis

24. Healthcare workers can use certain strategies when dealing with Alzheimer's, such as
   A. Asking simple questions
   B. Responding with affection and reassurance
   C. Setting a positive mood for interaction
   D. All of the above

25. Strategies for dealing with agitation include
   A. Doing everything for the person
   B. Increase caffeine intake
   C. Restraining the patient
   D. None of the above

26. Which of these changes in the brain are signs of Alzheimer's disease
27. The brain weighs approximately
   A. Three pounds
   B. Three ounces
   C. Six pounds
   D. Six ounces

28. When healthy neurons stop functioning, the damage initially appears to take place in the
   A. Brain stem
   B. Hippocampus
   C. Hypothalamus
   D. Cortex

29. Balance and coordination are controlled by the
   A. Cerebellum
   B. Cerebrum
   C. Brain stem
   D. None of the above

30. By the final stage of Alzheimer's, brain tissue
   A. Sticks to each other
   B. Shrinks
   C. Becomes yellow
   D. Becomes much larger

31. In Alzheimer's disease, there is a link between illness and
   A. Underactive enzyme
   B. Overactive enzyme
   C. Increase in red blood cells
   D. Decrease in red blood cells

32. There are approximately __________ nerve cells in our brain
   A. 100 billion
   B. 200 million
   C. 300,000
   D. 100,000

33. Nerve cells are formed
   A. The first month of life
   B. Within the first 6 months of life
   C. Upon delivery
   D. In the fetal stage and for a short time after birth

34. In Stage 2 of Alzheimer's,
   A. Family recognizes changes in memory
   B. Cognitive decline is more evident
   C. Cognitive problems are not usually evident yet
D. Assistance with daily tasks is required

35. A common Alzheimer's behavior is
   A. Combativeness
   B. Repetitive questions
   C. Screaming
   D. Spitting

36. Combativeness occurs most often when someone with Alzheimer's is
   A. Angry at the nurse
   B. Frightened
   C. Depressed
   D. Trying to be difficult

37. Death usually occurs ______ years after the initial diagnosis
   A. 4 – 6
   B. 5-10
   C. 2
   D. 15

38. Some of the symptoms or warning signs include
   A. Misplacing things
   B. Disorientation and confusion
   C. Personality changes
   D. All of the above

39. In Alzheimer's disease, women
   A. Have worse language impairment than men
   B. Have an increased risk of developing the disease
   C. Have brain atrophy sooner than men
   D. All of the above

40. With normal age-related memory changes, a person will
   A. Make bad decisions once in awhile
   B. Forget something but remember it later
   C. A and b
   D. Have difficulty maintaining a conversation

41. People with ________ have an increased risk of developing the disease
   A. Down syndrome
   B. Diabetes
   C. Congestive Heart Failure
   D. CVA

42. Family history of the disease
   A. Is a strong risk factor
   B. Has no bearing on an individual
   C. Only matters if it was the mother
   D. None of the above

43. Someone who has a history of _________ could be at risk for developing the disease
A. Rheumatic fever  
B. Head injury  
C. Premature birth  
D. Chickenpox

44. An early diagnosis of dementia  
A. Provides a better chance of benefitting from treatment  
B. Increases chances of participating in ongoing studies  
C. Provides time to develop a relationship with doctors and care partners  
D. All of the above

45. Alzheimer's tests have an accuracy rate of about  
A. 50%  
B. 75%  
C. 90%  
D. 100%

46. The following is true of medications available for treating the disease  
A. They have horrible side effects  
B. They may not have any effect  
C. They may slow the progression of the disease  
D. B and c

47. Situations affecting behavior may include  
A. Moving to a nursing home  
B. Being asked to bathe or change clothes  
C. A and b  
D. Having privacy

48. Common antidepressant medications are  
A. Prozac  
B. Paxil  
C. Zoloft  
D. All of the above

49. Common antipsychotic medications are  
A. Abilify  
B. Serax  
C. Ativan  
D. Celexa

50. When there is a risk of injury, nursing intervention should include  
A. Eliminate sources of environmental hazards  
B. Keeping patient in bed 24/7 with bars up  
C. Assess the degree of impaired ability of competence  
D. A and c

51. Family reaction to their loved one having Alzheimer's may include  
A. Denial  
B. Guilt  
C. Acceptance  
D. All of the above
52. To keep the brain healthy, one should
   A. Watch one’s weight
   B. Avoid tobacco
   C. A and b
   D. Do excessive weight training

53. Someone develops the disease in America
   A. Every hour
   B. Every 68 seconds
   C. Every 90 seconds
   D. Every day

54. The number of seniors that will die from the disease
   A. One out of two
   B. 100/day
   C. One in three
   D. One a month

55. Nurses can help family caregivers by
   A. Educating them
   B. Listening to them
   C. Involving them
   D. All of the above

56. Healthcare workers can reduce their stress by
   A. Avoiding change
   B. Asking for help
   C. Using relaxation techniques
   D. B and c

57. Safety is a major concern in patients with Alzheimer’s because
   A. They have no sense of danger
   B. They do not recognize familiar objects or places
   C. A and b
   D. They do not have changes in depth perception

58. When dealing with an agitated patient, it is best to
   A. Provide reassurance
   B. Give them an activity to do
   C. Walk away
   D. Yell at them

59. Sometimes __________ may have a higher rate of depression than the patient
   A. Nurses
   B. Family caregiver
   C. Both of the above
   D. Neither of the above

60. When families know the facts, it conquers their
   A. Fear
   B. Anger
C. Guilt
D. Depression
Purpose

The goal of this course is help health care professionals learn about different kinds of pain and treatment options that are available for them.

Objectives

By the end of this course, the learner will be able to:

1. State three treatment options for chronic pain.
2. List two main categories of pain.
3. Discuss nociceptive pain.
4. Discuss neuropathic pain.
5. Describe psychogenic pain causes.
6. List three examples of pain caused by damaged nerves.
7. Name four symptoms of chronic pain.
8. List three treatment options for acute pain.

Introduction

Everybody experiences pain at one time or another during the course of their lifetime. Pain can attack many different targets from bones to muscles to joints. There are many different causes and treatments for pain. Pain can be acute, chronic or intractable. Acute pain lasts a short time (usually less than 3-6 months) and is usually sharp. If acute pain is not relieved, it can lead to chronic pain. Chronic pain lasts for longer periods of time and often resists many medical treatments. Chronic pain usually causes severe problems. Because of the mind-body connection linked to chronic pain, treatment usually requires psychological as well as physical aspects of the condition. Some common sources of pain are headaches, pain from injury, joint pain and back pain.

At times pain is constant and throbbing or it can come and go. Pain might start with an illness or an injury, but it can develop a psychological aspect when the physical problem persists or after it heals. Pain can be caused from burns, pinched nerves, and many other things. When pain lasts for a long time, it can cause physical effects such as limited mobility, lack of energy, decreased appetite, fatigue, insomnia, mood changes and tense muscles. Some of the emotional effects caused by chronic pain include anger, anxiety, and depression. Some of the causes
of chronic pain include arthritis, cancer, neurogenic pain, headache, and low back pain. Pain can be mild to moderate to severe.

**Pain Classifications**

Pain is classified by the kind of damage that causes it. Two main categories are pain caused by tissue damage called nociceptive pain and nerve damage pain is called neuropathic pain. Diabetes is one disease that causes neuropathic pain. Psychogenic pain is not due to disease or injury or any visible sign of damage to the body inside or out. It is a pain affected by psychological factors. This pain sometimes has a physical origin but the pain caused by that damage is increased by factors such as stress, depression, anxiety, and fear. Some types of pain are referred to as syndromes. Myofascial pain syndrome refers to pain that is caused by trigger points in the body’s muscles. Fibromyalgia is an example of myofascial pain syndrome.

Nerves transmit signals to and from the brain. Nerves also transmit pain signals. When nerves get damaged it will interfere with the way signals are transmitted. This causes abnormal pain signals. So a person might feel a burning sensation when no heat is being applied to the area that feels like it is burning. Some nerve damage is to the central nervous system (CNS) which includes the brain and the spinal cord. Peripheral nerves in the rest of the body send signals to the CNS and they might be damaged by trauma. Examples of pain caused by damaged nerves include:

- Central pain syndrome (chronic pain from damage to the CNS)
- Complex regional pain syndrome (chronic pain from serious injury)
- Diabetic peripheral neuropathic pain (from nerve damage in the feet, legs, hands, or arms caused by diabetes)
- Shingles (a localized infection caused by virus that causes chickenpox)
- Postherpetic neuralgia (common complication to shingles where pain lasts more than a month)
- Trigeminal neuralgia (inflammation of a facial nerve)

**Pain Specialists and Management**

Pain medicine doctors specialize in diagnosing the cause of pain and then treating it. Anesthesiologists, neurosurgeons, neurologists and physiatrists often specialize in pain management. Anesthesiologists are doctors trained in anesthesia and
perioperative (time period describing the duration of a patient’s surgery) medicine. Neurologists are doctors who diagnose and treat diseases of the nervous system. Neurosurgeons are doctors who perform surgery on the nervous system. Physiatrists are doctors who specialize in physical medicine. Pain specialists work closely with a patient’s primary care doctor.

**Symptoms**

Symptoms of chronic pain include mild to severe pain that doesn’t go away; pain that is aching, burning or shooting; feelings of soreness, stiffness, and general discomfort. The treatment for pain depends on its severity. There are many ways to treat pain. Some treatment options include one or more of the following:

- Non-prescription drugs like Aleve, Motrin, Tylenol
- Stronger medications like morphine, codeine, or anesthesia
- Muscle relaxers and Antidepressants are also used for pain
- Nerve blocks (the blocking of a group of nerves with local anesthetics)
- Physical therapy
- Electrical stimulation
- Alternative treatments such as biofeedback, acupuncture and relaxation
- Behavior modification
- Psychological counseling
- Surgery

**Causes of Pain and Treatment Options**

There are many new and more effective treatments for people who have pain. Some techniques that were previously used specifically to make surgery and childbirth less painful are now being used to relieve other pain symptoms.

**Determining the Cause of Pain**

There are many techniques available to determine the cause of pain. Tests used to diagnose the cause of pain might include:

- CAT or CT scan – Computed tomography (CT) or computed axial tomography (CAT) scans use X-rays and computers to produce an image of a cross-section of the body.
• MRI – Magnetic resonance imaging produces very clear pictures of the body without using X-rays.
• Discography - uses a contrast dye injected into the spinal disc that is thought to be causing back pain.
• Myelograms – a contrast dye is injected into the spinal canal to enhance the diagnostic ability of X-ray.
• EMG – allows doctors to evaluate the activity of the muscles. Very fine needles are inserted into muscles to measure muscle response to signals from the brain or spinal cord.
• Bone scans – used to diagnose and monitor infection, fracture, or other disorders of the bone.
• Ultrasound imaging – also called ultrasound scanning or sonography, this test uses high-frequency sound waves to obtain images inside the body.

Treatment Overview

Treatments for pain are as diverse as the causes. Relief for pain might require a combination of treatment options. Milder forms of pain might be relieved with over-the-counter medications. Some of them include:

• Tylenol (acetaminophen)
• Non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin and Aleve.
• Topical pain relievers (creams, lotions, sprays applied to the skin)

Acetaminophen and NSAIDs relieve pain caused by muscle aches and stiffness, but only NSAIDs also reduce inflammation. When these types of medications don’t work, stronger medicines are used. These might include:

• Muscle relaxants
• Anti-anxiety drugs
• Antidepressants (Cymbalta for musculoskeletal pain)
• Prescription NSAIDs (such as Celebrex)
• Stronger painkillers (such as Codeine, Fentanyl, Percocet, Vicodin)
• Steroid injections (can be used to reduce swelling and inflammation in joints)
• Patient-controlled analgesia (PCA) – intravenous pain medication that a patient controls by pushing a button on a computerized pump.
• Nerve block – (injection of nerve-numbing medication)
• Trigger-point injections – a procedure used to treat painful areas of muscle that contain trigger points, or knots of muscle that form when muscles do not relax.

Surgical implants might be used when standard medications and physical therapy don’t offer pain relief. There are two main types of implants to control pain.

**Intrathecal drug delivery** is also called infusion pain pump or spinal drug delivery system. A surgeon would place a medicine pump under the patient’s skin. This system can cause fewer side effects than oral medications because less medicine is needed to control the pain.

**Spinal Cord Stimulation Implants** - a device that delivers electrical signals is surgically implanted in the body to transmit low-level electrical signals to the spinal cord or to specific nerves to block pain signals. The patient uses a remote control. Two kinds of spinal cord stimulation are available. The unit most often used is fully implanted and has a pulse generator and a non-rechargeable battery. The other system has an antenna, transmitter, and a receiver that relies on radio frequency. This system’s antenna and transmitter are carried outside the body, but the receiver is implanted inside the body.

• Transcutaneous electrical nerve stimulation therapy (TENS) uses electrical stimulation to diminish pain.
• Bioelectric Therapy relieves pain by blocking pain messages to the brain and also prompts the body to produce chemicals called endorphins that decrease or eliminate painful sensations by blocking the message of pain from being delivered to the brain. This therapy provides temporary pain control but can be used as part of a total pain management plan.
• Physical therapy helps relieve pain by using special techniques that improve movement and function impaired by injury or disability.
• Psychological treatment helps relieve pain by counseling to reduce stress, teach patients how to cope with their situation and acquire skills to manage difficult problems.
• Exercise can diminish pain by improving muscle tone, strength, and flexibility. It might also cause a release of endorphins, the body’s natural painkillers. Exercises include walking, biking, swimming, rowing and yoga.
• Alternative therapies – includes acupuncture, nutritional supplements for treating pain, massage, chiropractic therapies, herbal therapies, dietary approaches.
• Mind-body therapies – includes relaxation techniques, meditation, guided imagery, biofeedback, hypnosis, visualization.

Pain Clinics and Treatments

Pain clinics can deal with intractable pain. Often both inpatient and outpatient treatments are available. Some of these clinics are private while others are associated with hospitals. Pain clinics often take a multidisciplinary approach which involves doctors, psychologists and physical therapists. Pain medicine (also called algia) is a branch of medicine that uses an interdisciplinary approach to easing the suffering and improving the quality of life of people who are living with pain. When the cause of pain cannot be identified and it becomes chronic debilitating pain, the job of medicine is to relieve suffering. Pain can either be managed using pharmacological or interventional procedures. Interventional procedures typically used for chronic back pain include epidural steroid injections, facet joint injections, neurolytic blocks, spinal cord stimulators and intrathecal drug delivery system implants.

The World Health Organization (WHO) recommends a pain ladder for managing analgesia. In the treatment of chronic pain the three-step WHO Analgesic Ladder provides guidelines for selecting the kid and stepping up the amount of analgesia. The exact medications recommended vary with the country and the individual treatment center. The following gives an example of the WHO approach to treating chronic pain with medications. When treatment fails to provide adequate pain relief at one point, the doctor and patient move onto the next step.

For mild pain, paracetamol (acetaminophen) or a non-steroidal anti-inflammatory drug (NSAID) such as ibuprofen is recommended. For mild to moderate pain, paracetamol or and NSAID and/or paracetamol in a combination product with a weak opioid such as hydrocodone, might provide greater relief tan their separate use. A combination of opioid with acetaminophen can be used such as Percocet, Vicodin or Norco. When treating moderate to severe pain, the type of pain (acute or chronic) needs to be considered. The type of pain results in different medications being used. Certain medications work better for acute pain while other work better for chronic pain, and some work equally well on both. Acute pain medication is for rapid onset of pain such as from trauma or to treat post-operative pain. Chronic pain medication is for relieving long-lasting, ongoing pain.
Morphine is the gold standard to which all narcotics are compared. Fentanyl has the benefit of less histamine release so it has fewer side effects. Oxycodone is used across the Americas and Europe for relief of serious chronic pain. Its main slow-release formula is OxyContin. Diamorphine, methadone and buprenorphine are used less often. Pethidine is known in North America as meperidine. It is not recommended for pain management due to its low potency, short duration of action, and toxicity associated with repeated use. Pentazocine, dextromoramide and dipipanone are also not recommended in new patients except for acute pain where other analgesics are not tolerated or are inappropriate. Amitriptyline is prescribed for chronic muscular pain in the arms, legs, neck and lower back. Opiates are often used in managing chronic pain, but high doses are associated with an increased risk of opioid overdose.

Opioids

Opioids can provide a short, intermediate or long acting analgesia depending on the properties of the medication and whether it is formulated as an extended release drug. Opioid medications can be given orally, by injection, via nasal mucosa or oral mucosa, rectally, transdermally, intravenously, epidurally and intrathecally. In chronic pain conditions that are opioid responsive a combination of a long-acting or extended release medication is often given in conjunction with a shorter-acting medication for breakthrough pain, or exacerbations. Most opioid treatment is given by tablet, capsule or liquid by mouth. Suppositories and skin patches can be used. An opioid injection is rarely needed for patients with chronic pain.

Opioids are strong analgesics, but they don’t provide complete analgesia regardless of whether the pain is acute or chronic. Opioids are used for chronic malignant pain. They are modestly effective in non-malignant pain management. The adverse effects when opioids are used for long periods include drug tolerance, chemical dependency, diversion and addiction.

The American Pain Society and the American Academy of Pain Medicine issued clinical guidelines for prescribing opioids for chronic pain. Guidelines state the importance of assessing the patient for the risk of substance abuse; misuse, or addiction. The guidelines also recommend monitoring not only the pain but also the level of functioning and the achievement of therapeutic goals.

Commonly used long-acting opioids and their parent compound:

- Oxycontin (oxycodone)
• Exalgo (hydromorphone)
• Opana ER (oxymorphone)
• Duragesic patch (fentanyl)
• Nucynta ER (tapentadol)
• Methadone (methadone)

Methadone can be used for either treatment of opioid addiction or detoxification when taken once daily. It can also be used as a pain medication and given on an every 12-hour or 8-hour dosing interval.

Cannabinoids

Chronic pain is one of the most commonly listed reasons for the use of medical marijuana. Most people who use medical marijuana use it for management of pain. Evidence of medical marijuana’s pain mitigating effects is generally conclusive. Detailed in a 1999 report by the Institute of Medicine, “the available evidence from animal and human studies indicates that cannabinoids can have a substantial analgesic effect.” In a 2013 review study published in Fundamental & Clinical Pharmacology, various studies were cited in demonstrating that cannabinoids exhibit comparable effectiveness to opioids in models of acute pain and even greater effectiveness in models of chronic pain.

References

West Virginia - Pain and Management Options - Final Exam

10 Questions

1. Diabetes is one disease that causes __________ pain.
   A. Neuropathic
   B. Myofascial
   C. Fibromyalgia
   D. Psychogenic

2. __________ pain syndrome refers to pain that is caused by trigger points in the body's muscles.
   A. Neuropathic
   B. Myofascial
   C. Fibromyalgia
   D. Psychogenic

3. __________ is an example of myofascial pain syndrome.
   A. Fibromyalgia
   B. Shingles
   C. Acute pain
   D. Chronic pain

4. Examples of pain caused by damaged nerves include:
   A. Central pain syndrome
   B. Complex regional pain syndrome
   C. Diabetic peripheral neuropathic pain
   D. All the above

5. Some of the treatment options to treat pain include:
   A. Surgery
   B. Behavior modification
   C. Physical therapy and electrical stimulation
   D. All the above

6. Techniques available to determine the cause of pain include:
   A. CAT scan or CT scan
   B. MRI or EMG
   C. All but C
   D. Bone scans or myelograms or ultrasound imaging

7. When pain lasts a long time, it can cause physical effects such as
   A. Limited mobility, lack of energy
   B. Decreased appetite, fatigue
   C. Insomnia, mood changes and tense muscles
   D. All the above

8. Some of the emotional effects caused by chronic pain include:
   A. All the below
   B. Anger
   C. Anxiety
D. Depression

9. Some of the causes of chronic pain include:
   A. Arthritis, cancer, neurogenic pain,
   B. A and C
   C. Headache, low back pain
   D. Mood changes

10. Two main categories are pain caused by tissue damage called nociceptive pain and ______ damage pain called neuropathic pain.
    A. Lung
    B. Heart
    C. Nerve
    D. Foot