**Your Name:**

**US History Research Note Tracking Sheet**

**Your Topic:** To what extent did the atomic bomb medically benefit the victims of the atomic bomb and the medical industry in the mid to late 1900s?

**Directions- Every time you read anything related to your research paper you must do 'note-tracking' on this sheet. This Notetracking Sheet is worth 40 out of the 155 points for the 20% 'Research Paper Grade' this semester. Keep this Sheet in your research paper subfolder in your Google Homework folder & keep adding notes to this same sheet as you go along in the semester.**

**If you do a good job taking notes and writing down paraphrases and quotations here, then you can use them in your actual research paper.**

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| **Date & Specific Time**  i.e.  1/9 9:30-10:30 am | Source & Specific Pages Read  i.e.  Pearce *Burning Woman* pages 3-21 | Notes from this Specific Reading  -You can simply write a summary at the end of your reading…and/or  -You can copy some "specific quotations" and page numbers….and/or  -You can paraphrase with some "quotations" and page numbers…and/or  -You can take some notes as you read |
| 1/8  8:35am - 8:59 am  &  1:08pm- 1:46 pm | Hiroshima Diary: The Journal of a Japanese Physician  <https://www.questiaschool.com/read/57315087/hiroshima-diary-the-journal-of-a-japanese-physician> | * “Hiroshima was no longer a city, but a burnt-over prairie. To the east and to the west everything was flattened”, “The hills of Ushita and the woods of Nigitsu loomed out of the hae and smoke like the nose and eyes of a face” - 8 * “The skin had peeled, their flesh was wet and mushy”, “Their eyes, noses and mouths had been burned away, and it looked like their ears had melted off.” - 15 * people were dying so fast that I had begun to accept death as a matter of course and ceased to respect its usefulness” 29 |
| 1/10gradeA+ |  |  |
| 1/21  10:38 - 10:54 am  10:30 - 11:23 pm | Radiation exposure and circulatory disease risk: Hiroshima and Nagasaki atomic bomb survivor dta, 1950 - 2003  <http://www.bmj.com/cgi/doi/10.1136/bmj.b5349> | * between 1950 and 1953, 86,611 atomic bomb survivors with estimated radiation doses. * This study population was of all ages and both gender * Estimated risks by weighted colon doses in gray (Gy) for all analyses. Used weighted doses, sum of y doseplus 10 times the smaller neutron dose * deaths included 9622 from stroke, 8463 from heart disease * 969 from other circulatory diseases associated with the exposure to radiation * Stroke * Heart Disease |
| 1/21 grade A |  |  |
| 3/3  7:37 pm - 11:59 pm | Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings  <https://www.questiaschool.com/read/100976187/hiroshima-and-nagasaki-the-physical-medical-and>  pg 21 - 34  pg 55 - 67  pg 102 - 121 | 6 Aug 1945: Hiroshima   * The people in the city were on their way to work. * Morning 7am workers are tearing down buildings as part of the city’s self-defense measures - many volunteers and students (from outside and inside the cities were at work in the open)   + air-raid alert was off -> brief moment of relief - > 8:15 am “whole city was instantaneously covered by a bluish-white glare”   + planes invaded skies of Hiroshima * Atomic Bomb: epicenter reached maximum temperature of several million degrees centigrade and atmospheric pressure of several 100,000 bars   + formation of fireball, power heat rays and radiation were emitted in all directions within one millionth of a second after explosion     - demolished buildings and killed many people   + Survivors suffered agonies of thermal burns + radiation exposure, effects were delayed in many cases.   9 Aug 1945: Nagasaki   * alerts + alarms repeatedly announced everyday, the alert in the hot early morning, people accepted them like daily mail * Weather observation plane and B-29 dropped the atomic bomb   The Atomic Bomb and Thermal Radiations   * extremely high temperature it produces - bursting point reaches several million degrees centigrade (centigrade = celsius) while other explosives were about 5,000 celsius * At the high temperatures of an atomic bomb, all materials composing it become an ionized gas - electromagnetic waves of a short wavelength (0.01-10 nm) is released - these waves are instantly absorbed by the air and as the temperature rises -> fireball forms   + thermal radiations are released from fireball (responding to temperature)   + shock spreads more rapidly than fireball -> shock makes the air surrounding the fireball become luminous -> * Ultraviolet rays and near-ultraviolet rays were almost completely emitted within 15 milliseconds after explosion   + total energy of UV rays that reached ground = small. therefore, assumed that infrared rays emitted caused heat rays -> thermal burns (0.2 - 0.3 seconds after explosion)   Complex of Damages   * combination of heat rays, blasts, fires * Fire <-- ignition by thermal rays and from secondary ignition following structural destruction * ashes by blasts and fires -> 13 square kilometers in Hiroshima, 6.7 km in Nagasaki * Hiroshima buildings -. 62.9% completely destroyed/burned. (originally 76,000) * Nagasaki buildings - 22.7% completely destroyed (51,000)   Radiation from the atomic bomb   * Initial radiation - emitted within 1 minute after the explosion   + alpha particles, beta particles, gamma rays, and neutrons   + alpha rays released from uranium and plutonium   + alpha and gamma particles have short range -> these rays failed to reach the round     - gamma rays and neutrons are the initial radiation that had considerable effects on human body, plants, and animals * Residual radiation - later than 1 minute after explosion * exposure to the radiation: seriously injured + suffered for a long period   Injury to the Human Body   * thermal injury, blast injury, and radiation injury * 50 percent death rate is presumed in those exposed within 1.2 km of hypocenter * 80-100 percent at shorter distance * 50% of those seriously injured died by the 6th day * 25% died by the 7-12th day * more than 90% died by the 14th day * Atomic bomb thermal burns/ trauma/ radiation illness   Thermal Burns   * Primary atomic bomb thermal injury (flash burn)   + direct action of heat rays on human body * Secondary thermal burns - indirectly from a fire caused by atomic bomb thermal rays * alteration of epidermal tissue + demarcated from normal deeper tissue = feature of flash burns * There are different severities to the flash burns due to the different intensities of radiant heat energy. Least severe will cause Erythema (irritation causing dilatation of the blood capillaries) + most severe will cause Carbonization (charred burn) * some people were trapped in the flames during the fire, while in others their clothes were burned by the thermal rays   + the exact number of instant deaths or day 1 deaths are unknwn   + 90-00% of those receiving severe thermal injury cares did within a week * pg 121: those in the central cities “their clothes were completely burned, and they themselves were blown away by the blast. The exposed skin was burned, inflamed, and desquamated; and in many people skin became loosened and dropped down in flaps.   + most received direct thermal injuries to the viscera     - viscera: the internal organs in the main cavities of the body, especially those in the abdomen, e.g. the intestines.   + Malnutrition - at a time when food and medicine were in short supply - recovery process worsened * Many had scars, pigmentation, or even depigmentation   + man developed keloids and scars |
| 3/3  2:12pm -3:45 pm | Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings  <https://www.questiaschool.com/read/100976187/hiroshima-and-nagasaki-the-physical-medical-and>  pg 126 - 128  pg. 195 - 200  pg. 335 - 339 | Report of Investigation of Atomic Bomb Casualties [Science Council of Japan]   * The incidence of blast injury in victims indoors was higher than that in those outdoors   + most traumas were compatible with secondary injury rather than with blast or primary injury.     - high mortality in center of explosion was by intense injury along with primary or secondary injuries   + for exposed survivors -> no account for patients who died that day or instantly * Medical aid record: soon after explosion -> 10% - 40% of injury to or perforation of the tympanic membrane (a hole in the tympanic membrane, between the outer and middle ear that allows us to hear (it vibrates in response to sound waves -> we can hear sound)   Secondary injury and clinical course   * majority exposed who had escaped instant or early death suffered secondary injury   + bruises, lacerations, cut wounds, and fractures * Record kept (13 aug) kept at the Ninoshima Provisional Field Hospital (Army Medical School) in Hiroshima   + Thermal burns (50.2%), traumas (33.3%), both thermal and trauma (16.5%), * (15 aug) contusions (bruise) (53.8%), cut wounds from glass fragments (34.7%), fractures (11.5%)   + those multiple wounds that were not fatal -> caused great pain +agony -> infected   Radiation and Exposure dose (Radiation illness)   * Uranium bomb (Hiroshima), Plutonium bomb (Nagasaki)   + gamma ray + neutrons were the main agents in the radiation emitted by fission, fission products + induced-radioactive materials to exert their effects on land     - the actual exposure dose had major effects on human body (the values could not be measured soon after the explosion)   Injuries to Human Body   * Victims received a single large dose of total-body irradiation “first and greatest such experience that mankind has ever encountered”   + 1) injury to blood cells, especially to lymphocytes (white blood cells) with more than 100 roentgen, red blood, white blood cells, and platelets are injured. - > increased risk of infection or serious bleeding   + 2) destruction of gastrointestinal mucosa (the mucous membrane layer of the **stomach**, which contains the glands and the **gastric** pits)   + 3) fatal changes in central nervous system   Long term: Development of Keloid and Hypertrophic scars   * raised scars - overgrowth of scar tissue on the wound surface during reparative process after thermal burn * all over body (mostly on face and upper arm) * Hypertrophic scars (like keloids but less severe) * lack of nutrition, prolonged healing due to lack of proper medical treatment during early stage -> possibility of skin cancer or saroma * hematopoietic organs (bone marrow, lymph node, lymphatic tissue of spleen) greatly damaged by atomic bomb radiation   + young blood cells destroyed -> patients had infection and deteriorated vital defense mechanism ( less white blood cells) + hemorrhagic tendency (blood clotting)+ decreased platelets + anemia (less red blood cells)   Impact on Daily Life   * “weapon of mass slaughter” * People had no way to anticipate or protect themselves from “its enormous destructive powers”   + cities were dense with houses and people   + development communities * instantaneous killing without discrimination - young and old, men and women, soldiers and residents, visitors and citizens   + social systems, community life, structures built up over many years were destroyed * People who evacuated or left - lost family and friends * People who came into these two cities after the bombing to look for family and friends as part of civil defense or relief teams were subjected to direct or residual radiation -> areas where wind currents carried radioactive “black rain” * handicap |
| 3/3  10:39 pm - 10:55 pm | pg. 528 - 531  same article as above | * Many hospitals and medical universities were in ruins including Nagasaki Medical University * Students and Staff including medical students, pharmacy students, professors, nurses, doctors died or got hurt * Only in Nagasaki Medical University   + Teachers - 42 including professors, assistants, lecturers   + Administrative/nursing/doctor - 315   + Medicine Pharmacy students - 535 |
| 3/3  10:55 pm - 11:30 pm | Selden, Kyoko Iriye, and Mark Selden. *The Atomic bomb: voices from Hiroshima and Nagasaki*.  Armonk, N.Y.: M.E. Sharpe, 1989.<https://www.questiaschool.com/library/7913119/the->atomic-bomb-voices-from-hiroshima-and-nagasaki. | * Primary Source: Tsujimoto Tora   + “We thought of going to Takeya Elementary School, but we couldn’t because it was burning”   + “When we entered the Clothing Depot, they said those who could move on foot would be tended to last”   + “I tried to stand but my legs wouldn’t work. They said that the flesh came off when my feet were touched, so I couldn't move.   + “My face is so ugly that nobody employs me, and my husband falls ill every year”   + “Our savings are all gone, and we can no longer live on my paper bag making and piecework sewing” |
| 3/4  5:03 pm - 5:30 pm | <https://www.nps.gov/articles/trumanatomicbomb.htm>  Truman’s Decision to Use the Atomic Bomb | “In August 1945, it appeared inevitable that Japanese civilians would have to suffer more death and casualties before surrender. A ground invasion would result in excessive American casualties as well.”  “As president, it was Harry Truman’s decision if the weapon would be used with the goal to end the war. “It is an awful responsibility that has come to us,” the president wrote.”  “For myself I certainly regret the necessity of wiping out whole populations because of the ‘pigheadedness’ of the leaders of a nation, and, for your information, I am not going to do it unless absolutely necessary.” - Quote by Truman - |
| 3/15  8:15 pm - 8:40 pm | Nicholls, Jason. “The Portrayal of the Atomic Bombing of Nagasaki in US and English School History Textbooks.” Internationale Schulbuchforschung 25, no. 1/2 (2003): 63–84. | Summary:  The textbooks would provide examples of the kamikaze attacks and how the pilots would rather sacrifice their lives than to surrender the war. These are the official reasons that come up the most often in US history textbooks |
| 3/24  9:04 pm - 9:07 pm | Foster, Stuart, and J.W. Morris. “Arsenal of Righteousness: Treatment of the Atomic Bombing of Hiroshima in English and U.S. History Textbooks,” 1994. <https://www.jstor.org/stable/43056532?seq=1#metadata_info_tab_contents>  P. 63-66 | “merely another powerful weapon in the arsenal of righteousness” - Truman even added that it “saved millions of lives”  US textbooks give only official reasons, attempting to depict Truman’s decision to drop the atomic bomb as “inevitable”.  -> a more comprehensive view of events |
| 3/24  9:41 pm - 10:21 pm | Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings  <https://www.questiaschool.com/read/100976187/hiroshima-and-nagasaki-the-physical-medical-and>  p. 326- 330  p. 506 - 508  p. 527 - 535 | various injuries and disorders after exposure  acute stage:   * thermal injuries * trauma * radiation illness   delayed effects   * blood disorders, cataract, thyroid cancer, lung cancer, breast cancer, salivary gland cancer, and other cancer   + “significantly higher in the exposed compared with the non-exposed” * children who were exposed -> affected their growth (mentally and physically)   chromosome abnormality and genetic effect   * impossible to forecast when and what kind of disease will appear in those exposed or in their children   important responsibility for medical positions to ensure the health of the aging exposed people or second hand exposure people  comprehensive survey planned by Kyoto Imperial University - > large-scale  Hiroshima Communications Hospital and their Medical College preformed nineteen autopsies in 2 months  Various prefectures and medical related universities conducted surveys in Hiroshima   * Hiroshima Prefecture * Institute of Infectious Diseases of Tokyo Imperial University   Kyushu Imperial University, Kumamoto Medical College, and Yamaguchi Prefectural Medical College -> Nagasaki  many of these surveys were organized by radiologists and pathologists  The result of these surveys could have been completely different if studies of the atomic bomb were supported -> however the study and publication by Japanese scientists of the atomic bomb casualties and damages were greatly restricted  Huge setback because many nurses and doctors died in Japan due to the bombing   * Of 580 first and second year students who were attending general and special medical classes at bombing time in Nagasaki Medical University, 414 died. * the injuries were treated by those who “barely survived”   the antibacterial drugs were ineffective in relieving the symptoms  flies laid eggs on open wounds and maggots appeared in wounds -> complicating treatment  Once American forces occupied Japan -> medical supplies provided by the US Army, international red cross and american red cross -> many of the medicines provided were not widely used in Japan.   1. Penicillin 2. Sulfadiazine 3. Sulfaguanidine 4. Plasma   -> all proved extremely for infections after the second phase, 6 months after exposure  -> exchange of medicine -> advanced medical technology for Japan but also because of the international medical exchanges were not just from the US -> globally there were also medical advances |
| 3/25  1:45 pm - 2:03 pm  6:30 pm - 6:39 pm | Nichols, A.L., and R. Capote. “Nuclear Data for Medical Applications – Recent Developments  and Future Requirements.” Nuclear Data Sheets 120 (June 2014): 239–41 | cancer treatment represents a major economic and medical issue  International Atomic Energy Agency (IAEA) - dedicated research and investigation into identifying production routes of radioisotopes “judged to be of existing and emerging importance in nuclear medicine and radiotherapy”  The IAEA was created in 1957 in response to the deep fears and expectations generated by the discoveries and diverse uses of nuclear technology.  Radioisotopes for medical applications -> in relation to cancer diagnosis and therapy  organized meetings and studies development of different databases for medical radioisotope production  significant advances “worldwide in both organ imaging and internal radionuclide therapy”   * involves a radioactive drug that targets cancer cells |
| 3/25  6:39 pm - 7:09 pm | Luckey, T. D. “Atomic Bomb Health Benefits.” Dose-Response 6, no. 4 (October 2008): dose – response.0. doi:10.2203/dose-response.08-009.Luckey. | a research paper about increases health in Japanese survivors -> atomic bomb health benefits - which is a very controversial topic  acute exposures about 100 cSV  “Conclusions from these studies of atomic bomb survivors are:   * One burst of low dose irradiation elicits a lifetime of improved health. * Improved health from low dose irradiation negates the LNT paradigm. * Effective triage should include radiation hormesis for survivor treatment”   Over 90% of the exposed received less than 50 cSv  Cancer:   * there was a test * Leukemia is considered the most radiation activated of all cancers * those who were in places with more radiation their threshold was higher and those that lived away from the bombed areas had a lower threshold * the data collected indicates a reduced chance of leukemia and sold tissue cancer mortality rates -> increased average lifespan * however, this only works with those who received a small dose of the atomic bomb -> obviously those who were exposed to a lot of radiation - there are no benefits to that |
| 3/27  1:22 pm - 1:26 pm | Clancey, Gregory, and Rethy Chhem. “Hiroshima, Nagasaki, and Fukushima.” *Lancet* 386, no. 9992 (2015): 405–6. | around 350,000 victims are being followed for their effects of the low-dose radiation from the atomic bomb.  At some of the IAEA meetings, it was determined that the effects of the low dose radiation “are not the most central issue”. |
| 3/27  1:26 pm - 1:31 pm | Knowles, A. “Resilience among Japanese Atomic Bomb Survivors: Resilience among Atomic  Bomb Survivors.” International Nursing Review 58, no. 1 (March 2011): 54–60. | The world has never experienced any event that had the disastrous effects of the atomic bomb in August 1945.  The atomic bomb led to the research and the expansion of knowledge relating to the medical effects of radiation.  Radiation Effects Research Foundation (RERF) is a management that records impacts from the bomb.  spurred research -> evolve   * Cancer risk, leukemia, radiation-induced leukaemia, and solid cancer |
| 3/27  1:32 pm - 1:38 pm | O’Malley, Gerald F. “The Grave Is Wide: The Hibakusha of Hiroshima and Nagasaki and the  Legacy of the Atomic Bomb Casualty Commission and the Radiation Effects Research  Foundation.” Clinical Toxicology 54, no. 6 (July 2, 2016): 526–30. | No one knew what the short and long term effects would be on the individual and on their offspring.  medical teams were investigating by interviewing survivors and documenting injuries. |
| 3/27  1:38 pm - 1:45 | Sekine, Ichiro. “The Researches at Nagasaki University on Atomic Bomb Survivors.”  International Congress Series 1258 (November 2003): 39–49. | Atomic Bomb Casualty Commission (ABCC) studied alongside the RERF.  The different effects of the atomic bomb radiation to cancers can provide “us with the insights into human[s]” |