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**Trajectory of Events**  
**(Visual Timelines also available from Media and Infographics)**  
**Learning Activity 3: Eggs & Blood: Gifts & Commodities**  
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1. In 1996, the Dickey-Wicker Amendment was attached to the appropriation bills for the Department of Health and Human Services, deeming that no federal funds can be used for research in which a human embryo is created, terminated, or knowingly injured. This appropriations rider was voted into law, has been signed each year by every US president since. Though the rider prevents the use of federal funds to derive human embryonic stem cells (hESCs), it does not prohibit the use of federal funds to study hESCs that may have been derived using private funding sources. [Link](#)
2. In 2007, the UK Human Fertilisation & Embryology Authority issued a license for egg sharing between the reproductive and stem cell research sectors. In this scheme, reproductive services (IVF) are subsidized if the oocyte provider shares 50% of their oocytes with stem cell researchers. [Link](#) and [Link](#)
3. In 2009, New York State adopted a resolution through the NYSTEM initiative to provide up to \$10,000 in compensation for eggs procured for research purposes, despite the National Academy of Sciences' stance that oocyte providers should only be reimbursed for medical expenses and travel only. [Link1](#) and [Link2](#) (page 26-27)
4. In 2009, the film adaptation of Jodi Picoult's novel *My Sister's Keeper* brings awareness to the use of IVF and Preimplantation Genetic Diagnosis (PGD) to create "savior siblings" that can serve as a biological stem cell source for a sibling living with disease or disability. Because the sibling must not be a carrier of the disease and must be an immunologically match, both negative and positive genetic selection is employed, resulting in many surplus embryos. In 2010, the weekly program *Religion & Ethics Weekly* highlighted a real world case of savior sibling creation by detailing the life of the Trevino family, who donated their excess embryos to stem cell research despite the Catholic Church's failure to approve their methods. The mother underwent 5 IVF cycles and screened 36 to create 2 savior siblings, 1 cell line to research NEMO and other cell lines. [Link1](#) and [VideoLink2](#)
5. In 2010, The Nobel Prize in Physiology or Medicine is given to Robert Edwards for his contributions to IVF. [Link](#) and [Nobel Infographic](#)
6. In 2011, The International Society for Stem Cell Research (ISSCR) charged their Ethics and Public Policy Committee to issue a position statement on the provision and procurement of human eggs for research. [Link](#)
7. In 2011, the documentary film "Eggsplotation" is produced and distributed by The Center for Bioethics and Culture and Calla Papademas divulges her experience as a college student participating in oocyte provision for the reproductive sector. [Link](#)
8. In 2011, the US 9<sup>th</sup> Circuit Court of Appeals decided in favor of Flynn in *Flynn vs. Holder*, permitting payment for the sale of bone marrow stem cells procured via the peripheral blood system, and an appeal by the US Attorney General, Eric Holder, based on the intent of NOTA was rejected on March 27, 2012. [Link](#)
9. In 2011, researchers at the New York Stem Cell Foundation published a scientific paper in *Nature* in which the first three paragraphs were dedicated to discussing the recruitment and informed consent protocol used to procure 270 oocytes from 16 women for use in studies focused on identifying the oocyte components necessary to achieve

human cloning for ESCR. [Link1](#) In addition, Egli and Eggan, two of the authors of the original study published a letter in *Cell Stem Cell* detailing why they feel that altruistic donation of oocytes for stem cell research is impractical. [Link2](#)

10. In 2012, Jonathan Tilly publishes an article in *Nature* providing evidence of a rare population of ovarian stem cells in human ovaries of Japanese people undergoing sex reassignment surgery, [VIDEO Link](#).
11. On October 22, 2012, the American Society for Reproductive Medicine announced that social egg freezing is no longer considered experimental. [Link1](#) & [Link2](#)
12. On May 15, 2013, researchers at the Oregon Health and Science University in Portland successfully created human embryonic stem cell lines from human five-day old clones. However, because two egg providers were paid \$3000-7000 for their services, these stem cell lines are not accessible to researchers who receive funding from the California Institute of Regenerative Medicine (CIRM) which prohibits payments for egg providers. The lines are also not eligible for inclusion in the National Stem Cell Registry. [Link](#)
13. In June 2013, the Ethics Committee of the American Society for Reproductive Medicine publishes an opinion on the fate of “abandoned embryos” in fertility centers, stating that under no circumstance should they be used for research, as informed consent for this use was not obtained. [Link](#)
14. In June 2013, Colorado Representative Diane DeGette reintroduces the Stem Cell Research Enhancement Act (H.R 2433), which would allow extranumerary embryos stored in fertility centers to be used for stem cell research after undergoing an informed consent process. [Link](#)
15. In August 2013, Governor Jerry Brown vetoed California Assembly Bill 926, designed to compensate oocyte provision for stem cell research. The veto maintains that stem cell researchers funded by state monies in California can not provide more than direct medical expenses to oocyte providers, nor can they use state monies to fund research on embryos that were created by others in which the exchange of payment for oocyte provision occurred. [Link](#)
16. In October 2015, the *New York Times* ([Link](#)) provides press coverage regarding price fixing for egg providers in the reproductive sector, highlighting activist efforts via We Are Egg Donors and through federal lawsuits such as the *Kamahaki v. The American Society for Reproductive Medicine*. [Link](#)
17. In 2016, two research teams develop embryos like entities capable of survival to day 13 *in vitro*. The embryos were created used embryonic stem cells but no maternal tissues. Because these embryos can skip developmental milestones and advance by circumventing those that prior policies were built upon, many have called for a revision of the “14-day rule.” [Link](#)
18. In 2017, synthetic mesenchymal stem cells (MSCs [Link](#)) and synthetic human entities with embryo like features (SHEEFs ) were proposed as alternatives to sourcing cells from embryos or adult tissues. George Church and others published the rationale for SHEEFs in the new journal [eLife](#) .
19. In 2018, The Office of Human Research Protections, delayed for a second time the implementation of new rules governing research with humans and biospecimens. [Link](#)