

Reproductive Health & Early Childhood Development

Guiding Principles

1. Society receives outsized returns from women transferring information to other women who are entering into pregnancy and child raising.
2. Demand profiles in the economy change as awareness of product/service requirements for raising children increases.
3. Innovation is the application of information to a known problem. It delivers economic growth, and maximum information transfer means the highest probabilities of problem solving.
4. Community involvement contributes to a child's diverse experience of life and creates an environment of belonging, understanding and valuing differences, and security.
5. Men and women have a mutual responsibility for making decisions related to the healthcare and education of children they're raising.
6. Women take an explicit risk in deciding whether to propagate humanity. They risk loss of life, bodily changes, adverse health impacts, shifts in the dynamics of their households, and alter their career trajectories and prospects, and their contributions to society and industry. They face the emotional strain of weighing the decision to have children and the ongoing burden of responsibility at each stage of their lives and those of their children.

Policy Conception

1. Women's health, pregnancy, reproduction, and childcare generate expected returns to society and also carry risks to women and society that have to be accounted for in policy determinations.

Research Outline

1. Pre-pregnancy health and education
 - a. Sexual maturity and education
 - i. Cultural/societal impacts
 1. https://www.who.int/reproductivehealth/publications/sexual_health/defining_sexual_health.pdf
 - a. How do we define sexual and reproductive health?

- b. How do adolescents receive information about their own sexual maturity, and how do cultural norms and expectations influence their behavior and decision making?
 - c. How do minors/adolescents learn about sexual orientation and gender identity and how to address the psychological and health implications of each?
 - d. What roles do society, government, religion, family, formal education, healthcare providers, the internet, and media occupy in communicating information, and how can they be deployed to achieve better outcomes?
 - ii. Personal and family care decisions
 1. <https://pediatrics.aappublications.org/content/140/5/e20172858>
 - a. What level and type of information are adolescent patients and their families receiving from their pediatricians/physicians?
 - b. What are the impediments to sexual and reproductive health education provided by medical professionals?
 2. <http://www.ashasexualhealth.org/stdsstis/statistics/>
 - a. How common are sexually transmitted infections in the United States?
 - b. What are the risks and associated costs?
 3. <https://www.cdc.gov/nchstp/newsroom/docs/factsheets/STD-Trends-508.pdf>
 - a. What effects do sexually transmitted infections have on life expectancy, health, and fertility?
 - iii. Access and use of formal care channels
 1. https://apps.who.int/iris/bitstream/handle/10665/75217/9789241503594_eng.pdf;jsessionid=1BBBEB3D46951D4CCABACFEE6F479521?sequence=1
 - a. What criteria determine adolescent access and use of formal healthcare channels?
 - b. How should current policies be evaluated?
 - c. What areas reflect suboptimal outcomes, and how could policy address them?
- b. Birth control
 - i. Decision criteria/information
 1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3932035/>
 - a. How do women determine which variant or combination of contraceptives to use?
 - b. What sources of information and criteria affect these decisions?
 - c. How would these factors be altered by socioeconomic or contraceptive access variables?

- d. How do we ensure that a woman making decisions related to her contraceptive use is protected from legal encroachment by others?

ii. Access

1. <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Access-to-Contraception?IsMobileSet=false>
 - a. What barriers prevent women who desire contraceptives from obtaining them?
 - b. What is the impact of insurance on access cost?
2. <https://www.womenshealth.gov/a-z-topics/birth-control-methods>
 - a. What distribution channels exist for contraceptives?
 - b. What is the impact of insurance on access and cost?
 - c. How can women without insurance acquire them?

iii. Efficacy

1. <https://www.guttmacher.org/fact-sheet/contraceptive-use-united-states>
 - a. How frequently are various types of contraceptives used?
 - b. What success rates do they achieve with both perfect and typical use?

iv. Varieties and Risks

1. <https://www.mayoclinic.org/tests-procedures/combo-birth-control-pills/about/pac-20385282>
2. <https://www.mayoclinic.org/tests-procedures/mirena/about/pac-20391354>
3. <https://www.mayoclinic.org/tests-procedures/paragard/about/pac-20391270>
4. <https://www.mayoclinic.org/tests-procedures/contraceptive-implant/about/pac-20393619>
5. <https://www.mayoclinic.org/tests-procedures/cervical-cap/about/pac-20393416>
6. <https://www.mayoclinic.org/tests-procedures/condoms/about/pac-20385063>
7. <https://www.mayoclinic.org/tests-procedures/female-condom/about/pac-20394129>
8. <https://www.mayoclinic.org/tests-procedures/depo-provera/about/pac-20392204>
9. <https://www.mayoclinic.org/tests-procedures/birth-control-patch/about/pac-20384553>
10. <https://www.mayoclinic.org/tests-procedures/diaphragm/about/pac-20393781>
11. <https://www.mayoclinic.org/tests-procedures/tubal-ligation/about/pac-20388360>

12. <https://www.mayoclinic.org/tests-procedures/nuvaring/about/pac-20394784>
 13. <https://www.mayoclinic.org/tests-procedures/vasectomy/about/pac-20384580>
 14. <https://www.mayoclinic.org/tests-procedures/rhythm-method/about/pac-20390918>
 - a. Who bears the costs of contraception?
 - b. What are the psychological, health, and economic implications of contraceptive access and use?
- v. Economic impacts
1. <https://www.sciencedirect.com/science/article/abs/pii/S0010782403000787>
 - a. From a healthcare payer's perspective, what are the most effective and cost-effective methods of contraception?
 2. <https://iwpr.org/publications/economic-contraceptive-access-review/>
 - a. How do contraceptives influence women's education, career, income, the labor market, future generations, and their health and wellbeing?
- c. The decision to have a child
- i. Fertility and Key drivers
 1. <https://www.pewresearch.org/fact-tank/2019/05/22/u-s-fertility-rate-explained/>
 - a. At what rate are women deciding to have children?
 - b. What impacts this decision and timing?
 - ii. Risks/obstacles
 1. <https://www.thelancet.com/action/showFullTableHTML?isHtml=true&tableId=tbl1&pii=S0140-6736%2816%2931470-2>
 - a. What has prompted the rise in maternal mortality in the United States?
 2. <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-complications.html>
 - a. What physical and psychological risks do women face resulting from pregnancy and childbearing?
 3. <https://www.bcbs.com/the-health-of-america/reports/the-health-of-millennials>
 - a. How has millennials' shift away from primary care providers affected their overall health and preparedness for pregnancy?
 - b. How do risks from general health deficiencies present before, during, and after pregnancy?

d. Fertility

i. Male

1. <https://www.hhs.gov/opa/reproductive-health/fact-sheets/male-infertility/index.html>
 - a. What complications can men face when attempting to cause pregnancy?
 - b. What resources are available for treatment?

ii. Female

1. <https://www.hhs.gov/opa/reproductive-health/fact-sheets/female-infertility/index.html>
 - a. What complications can women face when attempting to become pregnant?
 - b. What resources are available for treatment?

iii. Alternatives

1. <https://travel.state.gov/content/travel/en/Intercountry-Adoption/Adoption-Process/before-you-adopt/who-can-adopt.html>
2. <https://www.plannedparenthood.org/learn/pregnancy/fertility-treatments/what-iui>
3. <https://www.plannedparenthood.org/learn/pregnancy/fertility-treatments/what-ivf>
4. <https://www.reproductivefacts.org/news-and-publications/patient-fact-sheets-and-booklets/documents/fact-sheets-and-info-booklets/what-is-intracytoplasmic-sperm-injection-icsi/>
5. <https://www.reproductivefacts.org/news-and-publications/patient-fact-sheets-and-booklets/documents/fact-sheets-and-info-booklets/third-party-reproduction-sperm-egg-and-embryo-donation-and-surrogacy/>
 - a. What options and requirements exist for natural pregnancy alternatives, including adoption, intrauterine insemination, in vitro fertilization, intracytoplasmic sperm injection, donated sperm, eggs, or embryos, and surrogacy?

2. Pregnancy and delivery

a. Prenatal healthcare

i. Doctor selection/visits

1. <https://medlineplus.gov/ency/patientinstructions/000596.htm>
 - a. What types of medical professionals provide care to pregnant mothers and aid in delivery?
 - b. What are the costs associated with different types of providers?

- c. How do prenatal and pregnancy outcomes change based on provider type?
 - 2. <https://www.mhtf.org/topics/maternal-health-in-the-united-states/>
 - a. Why are prenatal care and seeking medical advice early in pregnancy significant to the health of pregnant mothers and their children?
 - 3. https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_03.pdf
 - a. What level of prenatal care are pregnant women using in the United States?
 - ii. Pregnancy testing
 - 1. <https://www.womenshealth.gov/pregnancy/you-get-pregnant/knowning-if-you-are-pregnant>
 - 2. <https://www.fda.gov/medical-devices/home-use-tests/pregnancy>
 - a. What tools do women use to determine pregnancy status leading up to their first prenatal doctor visits?
 - iii. Infection/disease
 - 1. <https://www.cdc.gov/pregnancy/infections.html>
 - a. To what infectious diseases are pregnant women more susceptible?
 - b. What can they test for and avoid to maintain a healthy pregnancy?
 - iv. Medication
 - 1. <https://www.cdc.gov/pregnancy/meds/treatingfortwo/index.html>
 - a. What alterations do healthcare professionals advise in the use of medication of women before and during their pregnancies?
 - b. What information sources should be trusted and used for making these decisions?
 - v. Testing during pregnancy and genetic screening
 - 1. <https://www.stanfordchildrens.org/en/topic/default?id=common-tests-during-pregnancy-85-PO1241>
 - a. What types of tests are commonly performed by doctors to gauge the health of the mother and fetus and prepare for a smooth delivery?
 - b. What disorders and diseases contribute to difficult pregnancies and deliveries or could have an ongoing impact on the life of the mother and child?
 - c. What amount of genetic influence factors into pregnancy selection, and what types of control should be permitted?
- b. Pregnancy termination
- i. Information and Motivation

1. <https://bmcwomenshealth.biomedcentral.com/articles/10.1186/1472-6874-13-29>
 - a. How do women arrive at the decision to terminate a pregnancy?
 - b. What socioeconomic and sexual education characteristics guide the rationale, such as access to and proper use of contraceptives?
- ii. Access
 1. <https://www.guttmacher.org/report/abortion-incidence-service-availability-us-2017>
 - a. How does the availability of abortion clinics relate to the rate of abortions?
 - b. How do contraceptives, state laws, facility closures, and medication access affect self-managed abortion?
- c. Healthcare/nutrition/monitoring
 - i. https://www.who.int/elena/titles/nutrition_counselling_pregnancy/en/
 1. What support and information do pregnant mothers have about proper nutrition and overall health?
 2. How do nutrition and maternal health support healthy pregnancy and reduce problematic deliveries and infant health deficiencies?
 - ii. <https://www.karger.com/Article/Fulltext/496471>
 1. What are the consequences of maternal health and nutrition on the long-term health of the child before, during, and after pregnancy?
- d. Unexpected outcomes
 - i. Miscarriage
 1. <https://bmcmedicine.biomedcentral.com/articles/10.1186/1741-7015-11-154>
 - a. What potential causes lead to miscarriages?
 - b. How can physicians reduce the likelihood of one-time and recurrent miscarriage?
 - ii. Premature delivery
 1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3410509/>
 - a. What risk factors incite preterm deliveries?
 - b. How can health and education systems address them?
 2. <https://www.marchofdimes.org/research/prematurity-research.aspx>
 - a. What research is underway to explain the relationship between premature delivery and infection?
 - b. How can we explain the high percentage of preterm delivery with unknown causes?
 - iii. Congenital diseases

1. <https://www.cdc.gov/ncbddd/birthdefects/nbdps.html>
 - a. What facets of a mother's environment, consumption, behavior, and genes, result in birth defects?
 - b. How can healthcare providers and other resources help to educate and screen for risk factors?
- e. Pregnancy in the workforce
 - i. <https://www.nationalpartnership.org/our-work/resources/economic-justice/pregnancy-discrimination/by-the-numbers-women-continue-to-face-pregnancy-discrimination-in-the-workplace.pdf>
 1. What can governments and employers do to minimize pregnancy discrimination in the workplace?
 2. What economic and public health outcomes does discrimination produce?
 - ii. <https://academic.oup.com/occmed/article/62/2/88/1480061>
 1. What changes and risks do pregnant women experience in the workplace?
 2. What legal frameworks and enforcement mechanisms minimize negative repercussions?
- f. Delivery
 - i. Information
 1. <https://www.who.int/news-room/detail/07-11-2016-pregnant-women-must-be-able-to-access-the-right-care-at-the-right-time-says-who>
 - a. What frequency of prenatal care is necessary to pre-plan, educate, and alleviate medical concerns?
 2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3209742/>
 - a. How does information transfer and navigation of the healthcare system differ among African American mothers (and mothers of other minority groups)?
 - ii. Healthcare access
 1. <https://blogs.scientificamerican.com/sa-visual/the-cost-of-giving-birth-in-the-u-s/>
 - a. What costs can pregnant mothers and their families expect to pay for the delivery of their child (children)?
 - b. What payer groups make up the majority of deliveries?
 2. <https://www.healthcare.gov/what-if-im-pregnant-or-plan-to-get-pregnant/>
 - a. What public care options allow affordable access to care for pregnant mothers?
 3. <https://www.commonwealthfund.org/blog/2019/rural-maternity-care-crisis>
 - a. What does the diminishing supply of rural healthcare mean for maternal and infant health?

iii. Delivery plan

1. <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-7-26>
 - a. What drives a mother's satisfaction with the method of delivery?
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3392605/>
 - a. How do expectant mothers decide which healthcare providers to enlist?
 - b. What influences the experience of delivery and pregnancy-related healthcare?
 - c. What prompts providers to exercise certain procedures at a higher rate than others?
 - d. What determines the medical necessity of procedure use, and how can providers' incentives be aligned more closely with outcomes and necessity.

iv. Difficulties

1. <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2013.1359>
 - a. How common are complications across various delivery methods and settings?
 - b. What variations exist in the distribution of outcomes?
2. <https://www.cdc.gov/reproductivehealth/maternal-mortality/pregnancy-mortality-surveillance-system.htm>
 - a. Why has the United States seen long-term increases in maternal mortality and pregnancy-related deaths?
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3975455/>
 - a. What leads to preterm delivery?
 - b. What preventive measures could be enacted to reduce preterm deliveries?
 - c. What cost-benefit would result from these measures?
4. <https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-019-0729-2>
 - a. How does patient mistreatment vary by racial/ethnic, socioeconomic, delivery setting, and presence of birthing complications?

v. Stillbirth

1. <https://www.cdc.gov/ncbddd/stillbirth/facts.html>
 - a. How pervasive is stillbirth among pregnancies in the U.S.?
 - b. What groups experience stillbirth at disproportionate rates?

3. Post-pregnancy

a. Post-partum recovery

- i. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4304667/>

1. How can healthcare providers prepare women for their pain, healing, bodily changes, psychological state, and where to go for information and support after childbirth?
 2. What can physicians do to educate patients on the effects of delivery decisions in post-partum recovery?
 - ii. <https://www.acog.org/-/media/Departments/Toolkits-for-Health-Care-Providers/Postpartum-Toolkit/ppt-complications.pdf?dmc=1&ts=20200114To436007851>
 1. What should post-partum patients expect?
 2. What treatment and resources can help during post-partum medical visits and self-care?
- b. Childcare
- i. <https://www.americanprogress.org/issues/early-childhood/reports/2019/03/28/467488/child-care-crisis-keeping-women-workforce/>
 1. What economic implications flow from the inability of families to find quality, affordable childcare?
 2. How are parents' careers, earning capability, and ability to invest in other areas of their lives detracted from by limited access to childcare?
 3. What could employers and government entities do to bolster provisions?
- c. Single parenthood
- i. <https://www.pewresearch.org/fact-tank/2018/04/27/about-one-third-of-u-s-children-are-living-with-an-unmarried-parent/>
 1. Who is bearing the brunt of child-rearing responsibilities among non-traditional families?
 2. What downstream effects correlate with the rise in single and co-habiting parental structures?
 3. How are income, wealth, and costs distributed among disparate parental units?
- d. Decision to return to the workforce
- i. <https://www.census.gov/prod/2011pubs/p70-128.pdf>
 1. How do age at first birth, marital status, educational attainment, work history, leave arrangements, and other metrics relate to post-birth decisions to re-enter the workforce?
 - ii. <https://www.princeton.edu/news/2018/10/22/women-most-likely-leave-labor-force-after-first-child-not-later-births>
 1. How do women decide when/whether/how their family planning will direct their labor participation?
4. Early childhood development
- a. Postnatal care

- i. <https://data.unicef.org/topic/maternal-health/newborn-care/>
 1. When and to what are newborns most vulnerable?
 2. What can parents and healthcare providers do to increase health and survival?
 - ii. <https://www.cdc.gov/nchs/fastats/infant-health.htm>
 1. How numerous are preterm or low-birthweight births in the U.S.?
 - iii. <https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm>
 1. What are the health consequences of preterm birth?
- b. Infant mortality
- i. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6487507/#!po=35.7143>
 1. Why has infant mortality in the U.S. been more pervasive and decreased at a slower pace than in other developed countries?
 2. What causes the systemic racial/ethnic, regional/geographic, and educational disparities in infant mortality in the U.S.?
 3. What are the primary reasons for neonatal and post-neonatal infant mortality?
- c. Infant to toddler care and development
- i. <https://www.americanprogress.org/issues/early-childhood/reports/2018/11/15/460970/understanding-true-cost-child-care-infants-toddlers/>
 1. How do parents receive information about child raising?
 2. What mechanisms exist within the healthcare system to train or educate parents and provide complementary resources?
 3. What are the costs of outsourced childcare to parents?
 4. How do tradeoffs made by families with limited resources shape the labor market and broader economy?
 - ii. <https://developingchild.harvard.edu/resources/inbrief-science-of-ecd/>
 1. How do cognitive and emotional development occur in children?
 2. How do early education, environment, and care transform the process?
- d. Pediatric healthcare
- i. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4978135/#!po=10.7143>
 1. When and what types of care/access matter most to pediatric patients?
 2. How can healthcare resources and investment be deployed toward preventive care and habit-forming behavior to improve long-term outcomes?
 3. How can government payers incentivize providers to increase delivery of services to pediatric patients?
 4. How does pediatric healthcare delivery correlate with vaccination?
- e. Preschool and Kindergarten

- i. <https://www2.ed.gov/documents/early-learning/matter-equity-preschool-america.pdf>
 1. What long-term cognitive benefits do preschool students display?
 2. What do access, distribution, and funding look like among states?
- ii. <http://www.nea.org/home/18226.htm>
 1. How does early childhood development reward society?
- iii. <https://www.edweek.org/ew/qc/2015/early-childhood-education-in-the-us.html>
 1. What are school-age enrollment rates?
 2. Where does socioeconomic, parental education, racial/ethnic, and regional inequality appear?
- iv. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2140009/>
 1. How should schools and policymakers evaluate Kindergarten preparedness in children?