The Civil Rights of Health, Education, & Biology: The Enduring Legacy of Martin Luther King

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"Darkness cannot drive out darkness; only light can do that. Hate cannot drive out hate; only love can do that."

-Strength to Love, 1963
Basic Premises: Building on MLK’s Legacy

• Racism and marginalization degrade civilization, with consequences for all citizens
• We have within us, individually and collectively, the power to right what is wrong.
• “Science gives man knowledge which is power.” MLK
New Knowledge about “Return on Investments” (ROIs) in Human Capital

1. Early educational and health interventions can disrupt expected intergenerational patterns of low educational attainment, poverty, and poor health (The Abecedarian Project)

2. Biological risks for non-optimal development can be overcome by systematic early supports (The Infant Health & Development Project)

3. Preconception and prenatal “stress and resilience” of parents can alter pregnancy outcomes and set the stage for lifelong health (The Community Child Health Network Study)
Enduring Health and Education Benefits of the Abecedarian (ABC) Early Intervention (from 15 Months to 35 Years Old)

- Intelligence (IQ)
- Reading and math skills
- Academic locus-of-control
- Social Competence
- Years in school
- College attendance
- Earned 4 yr college degree
- Full-time employment
- Cardiometabolic health
- Grade Repetition
- Special Education placement
- Teen Pregnancies
- Smoking & drug use
- Teen depression
- Welfare use
- Overweight/BMI
- Framingham Risk Score

Plus benefits to mothers of these children (education, employment)

Ramey, Sparling, & Ramey (2012); Science (2014)
The ABC Intervention improved IQ scores for Premature, Low Birthweight Infants in 8 sites (Stanford-Binet at 36 mos for 2001-2500 gm LBW Group)

*Infant Health and Development, JAMA, 1990  C. T. Ramey, AAAS, 1996*
The ABC intervention allowed children to overcome the predicted pattern of low intelligence associated with low maternal educational attainment (from IHDP)

Adapted from Ramey, Sparling, & Ramey 2012
Applied Biosocial Contextual Development (ABCD): A Framework for Understanding Human Development

The life course for health and achievement is shaped by forces starting prior to conception
(NIH Community Child Health Network: A 5-site prospective study of 2500+ families)

1. Parental stress can influence maternal allostatic load – an index of biological wear-and-tear - during the preconception and prenatal periods.
2. Maternal stress and allostatic load in the preconception period can alter prenatal development, including increased risk for low birthweight.
3. Children’s stress regulation and early brain development are likely to be impacted by preconception and prenatal conditions that link to behavioral and biological adaptation of their parents (i.e., non-genomic transmission).
4. Many adult-onset illnesses have their origins in early development, and precursors of cardiometabolic health occur in the first 5 yrs of life.
The Preconception Origins of Family Health

HEALTH CARE, EDUCATION, WORK, RECREATION, & SPIRITUAL RESOURCES

SOCIAL & PHYSICAL ENVIRONMENT: NEIGHBORHOOD & COMMUNITY CONTEXTS

- Mother Resilience and Social Support
- Mother Allostatic Load
- Mother Mental & Physical Health, Health Behavior, and Parenting
- Parental Stress and Stressors
- Parents’ Relationship and Home
- Interpregnancy Interval
- Prenatal Development and Birth Outcomes
- Child Outcomes: Health, Behavior, and Neurocognitive Development

HEALTH CARE, EDUCATION, WORK, RECREATION, & SPIRITUAL RESOURCES

SOCIAL & PHYSICAL ENVIRONMENT: NEIGHBORHOOD & COMMUNITY CONTEXTS

- Father Resilience and Social Support
- Father Allostatic Load
- Father Mental & Physical Health, Health Behavior, and Parenting
- Father Stress and Stressors

SOCIAL & PHYSICAL ENVIRONMENT: NEIGHBORHOOD & COMMUNITY CONTEXTS

- The Preconception Origins of Family Health
Health Disparities are closely linked to Educational Inequalities and Poverty

• Good health associated with higher education and lifetime achievement
• More years of education associated with greater health, happiness, income, longevity, and more active citizenship
What is good health?

• Multiple indicators of positive physical condition with absence of chronic or severe illness and injuries
• Positive (give-and-take) social relationships on a regular basis
• Good emotional health: stable, positive outlook on life with good coping skills for life’s many challenges

(consonant with WHO definition)
Being poor and/or Black predict(s) an excess of many health-related indicators

- Stress, anxiety, and depression
- Obesity and inadequate exercise
- Addictions
- Cardiometabolic diseases
- Injuries
- Respiratory illnesses
- Exposure to environmental toxins
- Prematurity, low birth weight, and infant mortality
- Disruptions in family structure, residence, work
- Premature death
How education influences health

- Improves lifelong literacy to have timely access to complex health-related information
- Conveys specific knowledge about one’s biology, health, and healthy lifestyles
- Provides more time in safe, healthy, active environments
- Increases income and stable employment, with better health care benefits
How health promotes education

• Better attendance record
• Better attention in classroom and school
• More attractive to peers and teachers
• Better CNS (brain) functioning
• Higher energy levels for all types of school-related activities
Increasing Poverty Rates among Children: Black:White Disparities >2X

Note: Races and ethnicities are presented in the following mutually exclusive categories: White refers to non-Hispanic whites, black refers to non-Hispanic blacks, and Hispanic refers to Hispanics of any race.

Source: Authors’ analysis of Current Population Survey Annual Social and Economic Supplement Historical Poverty Tables (Tables 3 and 4)
“Science gives man knowledge which is power” MLK

1. How do we collectively understand and then propose to apply the scientific findings that affirm the efficacy of systematic interventions to improve the health and education outcomes of our most vulnerable children, families, and communities?

2. How successful have we been in using knowledge to drive policy and practice in health and education to realize large benefits?
Proposed National Action Agenda to Help Eliminate Disparities

1. Launch a major science information campaign about its practical value *to promote human capital*
2. Conduct comprehensive, auditable inventory of current federal human capital investments and their measured/estimated impact
3. Transform the federal ethos so that agencies acknowledge – with enthusiasm – that their programs and operations are “human experiments in progress” and that partnerships with multi-university consortia could bring scientific methods and new insights to bear
1. Launch a major science information campaign about its practical value to promote human capital

Rationale:

• Help the public better understand and trust “science” and “scientific methods”

• Demonstrate the practical utility and the relevance of findings for individuals and our nation

• Recruit a more diverse scientific workforce and leadership in STEM

• Set the stage for stronger University-Community partnerships
2. Conduct comprehensive, transparent inventory of federal human capital investments and their measured impact

Rationale:

• Allow federal agencies and the public to see the big picture – about the magnitude of investment, silos and potential competition, and evidence about achieving goals of these investments

• Develop a more coordinated, streamlined plan related to human capital (e.g., ending popular programs if they are not effective, expanding innovative programs that produce benefits, learning more about differential benefits for subgroups)
3. Transform the federal ethos so that agencies acknowledge – with enthusiasm – that their programs and operations are “human experiments in progress”

Rationale:

- Incorporate competing ideas about how to do things *from the beginning*, so that objective data can be openly collected, analyzed, and used to inform future programs and operations.
- Increase public trust that federal programs are helping to eliminate the racism, classism, and biases that have contributed to entrenched health and educational inequities.
- Produce data to reduce the long-established patterns in most federal agencies of being “cumbersome,” “inefficient,” “resistant to change,” and yet “always changing, based on partisan politics.”
- Engage a wide range of talent and dedication from higher education to help study and then refine or re-design our federal operations.
Affirmation of the Ideals and Framing Vision of Virginia Tech

• Ut Prosim: That I May Serve
• Invent the Future
Proposed Action Agenda
to Maximize Human Capital: Virginia Tech

1. Infuse the curriculum at both undergraduate and graduate levels with an explicit emphasis on “applying principles of human development” and “social justice” to all fields of inquiry and practice

2. Invite and disseminate wide, diverse input about how to make our community more supportive of the “human capital” that resides in all students, employees, faculty, administrators

3. Design and implement a longitudinal study of all VT graduates to document their contributions –
   1. To invent the future
   2. To serve others
   3. To continue a long-term relationship to keep VT “at its very best”
• We owe immense thanks to our many collaborators, community partners, and funding agencies (National Institutes of Health, U.S. Dept. of Education, Maternal & Child Health Bureau, Centers for Disease Control & Prevention, Robert Wood Johnson Foundation, Pew Charitable Trusts, Civitan International)

• All of these datasets are either in the public domain or scheduled for release to maximize scientific utility and build public trust

• For copies of this presentation and key supporting citations, please contact us: slramey@vt.edu  ctramey@vt.edu  540-526-2033
Salient Features of Applied Developmental Science

- Commitment to generating and then using knowledge to promote positive development and prevent non-optimal development (values-driven, action-oriented)
- Multi- and trans-disciplinary
- Incorporates long-term/longitudinal perspectives
- Considers systems and contextual factors along with biological and psychosocial variables
The need for a new brand of human science…

- Many scientific discoveries are not being put into action in community settings
- Many entrenched human problems remain difficult to study in their totality, complexity, variation
- Mistakes of the past often are repeated (in ignorance) – both in research and services
- Practitioners and scientists often lack adequate understanding and respect for each other
- In order to train a “next generation” of practitioners and scientists, new partnerships are essential
Community-Based Participatory Research (CBPR)

- Builds upon a balanced partnership model
- Assumes value of community (service providers and community residents) in designing and conducting research
- Recognizes that scientific and clinical expertise needs to be shared more effectively with community
- Creates framework for new receptivity