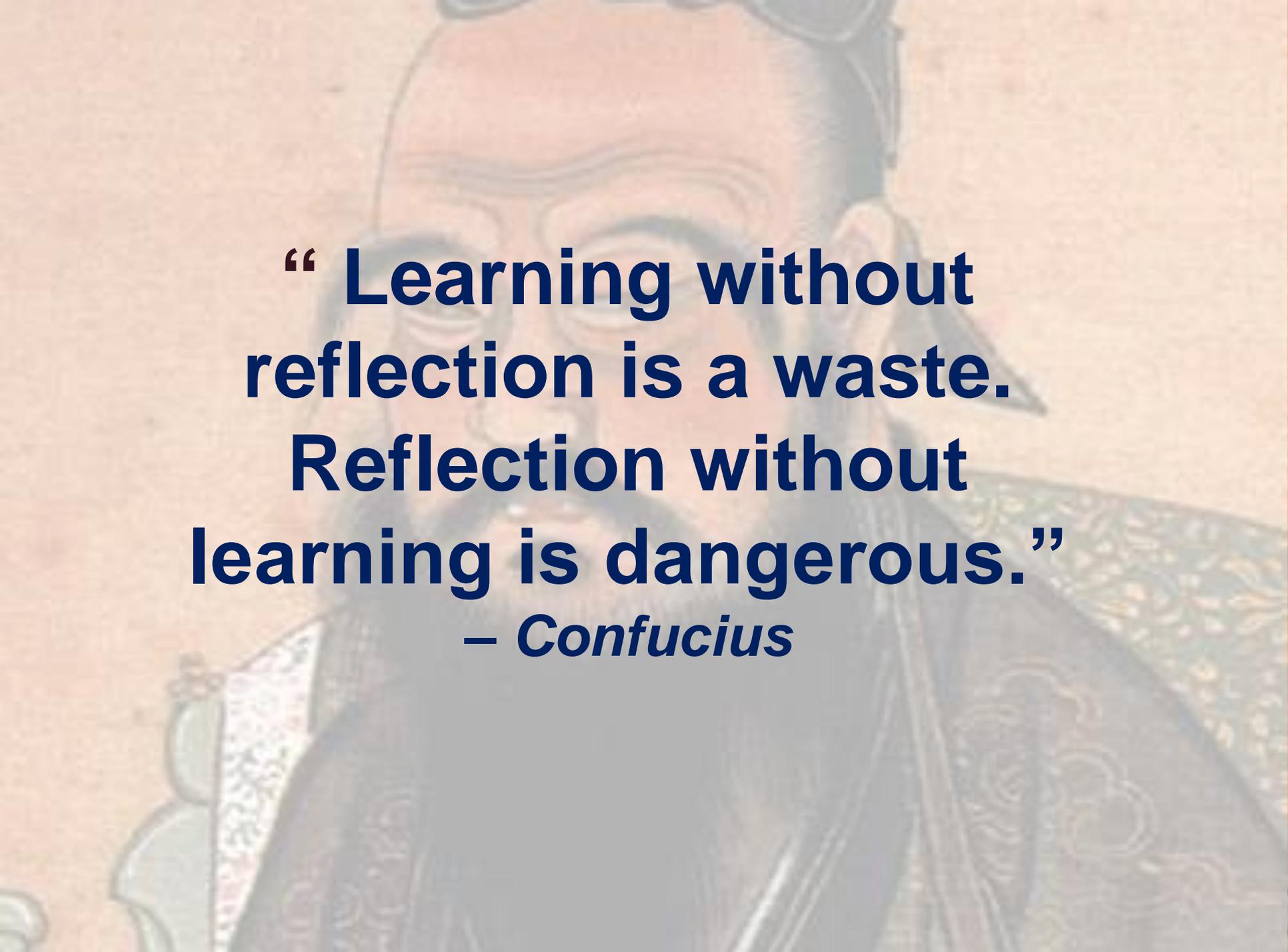


Research Issues in the Assessment of Birth Settings

Workshop Reflections and Future Research Needs

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**“ Learning without
reflection is a waste.
Reflection without
learning is dangerous.”**
– *Confucius*

Childbirth Trends and Statistics

What have we learned?

- ❑ There have been substantial increases in births to women age ≥ 30 , births to Hispanic women, and women with >40 lb gestational weight gain
- ❑ Cesarean births rose nearly 60% from 1996-2009, followed by a small decline (32.9% to 32.8%)
- ❑ The preterm birth rate fell for the 5th straight year to 11.72%
- ❑ There have also been substantial decreases in the low birth weight rate and the number and rate of triplet and higher order multiple births

Women Giving Birth in Various Settings

What have we learned?

- ❑ The percentage of births outside of the hospital has increased rapidly from 2004-2010 (1.2% in 2010), mostly due to increases among non-Hispanic white women**
- ❑ More out-of-hospital births occurred among older, multiparous women with lower risk profiles**
- ❑ In 2010, 67% of out-of-hospital births were home births, 28% birthing center**
- ❑ In 2010, 88% of home births were planned**

Birth Statistics Knowledge Gaps

❑ Intended place of delivery

- Planning status of home birth reported by only 31 states and DC (60% of US births)
- States are in varying stages of implementing the 2003 revised birth certificate (required by 2014)

❑ Reporting of transfers from alternative birth settings

- Home birth patients who were transferred to a hospital may not be determined from birth certificate
- Reporting of patient transfers not required in all states
- Oregon has added transfer of births from home to birth certificate

❑ Reporting of birth attendant

- Categorization of “other midwife”, “other” birth attendant, level of training/certification not known

Assessment of Risk in Pregnancy

What have we learned?

- ❑ **Complex, involves determination of what is considered “low risk”**
 - Singleton, term, vertex, no other medical/surgical conditions, other factors?
- ❑ **Risk is dynamic and subject to change**
- ❑ **Risk to the mother must be balanced with risk to the fetus**
- ❑ **Risk perception varies between provider and patient**
- ❑ **Cultural views, women’s views and structural conditions affect risk and risk perception**
- ❑ **Overall absolute risk of adverse events is low**

Assessment of Risk in Pregnancy

Knowledge Gaps

- ❑ **Uniform definitions of outcomes**
- ❑ **Risk assessment tools for maternal morbidity and mortality**
 - Consistent “low-risk” criteria
 - Descriptors for maternal resources, levels of maternal care
- ❑ **Predictors of neonatal and maternal complications**
- ❑ **Predictive triggers for elevation of care or transport**
- ❑ **Role of providers and care system**
 - Interprofessional working relationships
 - Consultation/transfer of care
 - Thresholds for intervention in high level care facilities

Birth Settings and Health Outcomes

What have we learned?

- ❑ **Alternative birth settings associated with*:**
 - Less intervention, fewer maternal complications, high transfer rates, no difference in perinatal death rate
- ❑ **Home, freestanding, and “alongside” midwifery units associated with**:**
 - Decreased obstetrical interventions, increased normal births, high transfer rates, increased neonatal risk for first pregnancies with home births
 - Other studies have shown association of home births with increased neonatal mortality
- ❑ **The process of care has an impact on health outcomes**
- ❑ **The built environment has an impact on neural immune connections and on health**

Birth Settings and Health Outcomes Knowledge Gaps

- ❑ **Evaluation of all birth settings, comparing women of equal risk in all settings**
 - No trials of freestanding birth centers
- ❑ **Studies with consistent process and outcome measures**
 - Assessment of pain relief
 - Effects of pain management on neonate
 - Effects on successful breastfeeding
 - Physiologic/biochemical measures
- ❑ **Studies with longer-term outcomes**
 - Developmental origins of health and disease
- ❑ **Optimal process of care**

Workforce Issues

What have we learned?

- ❑ **Supply trends are variable by profession**
- ❑ **There are increasing numbers of midwife-attended births (in and out of hospital)**
- ❑ **State variability of who is licensed to do what**
- ❑ **Competent nursing staff contribute to improved patient outcomes**
- ❑ **Collaborative teams of care improve outcomes**

Workforce Issues

Knowledge Gaps

- ❑ **Role of education and certification in quality of care**
- ❑ **Ideal staffing model to optimize care quality**
 - Collaborative teams
 - Provider ratios
- ❑ **Impact of “missed nursing care” in out-of-hospital settings**
- ❑ **How nurse staffing affects quality, safety, and cost of hospital-based care**
- ❑ **Impact of technology on workforce training needs and demand**

Data Systems and Measurement

What have we learned?

- **Data sources to inform outcomes for birth settings include:**
 - 2003 US Standard Certificate of Live Birth
 - Linked birth certificate data sets (PDD, Medicaid)
 - Registries (MANA Stats, AABC)
 - Payers
 - State/Regional Perinatal Quality Collaboratives
 - Professional organizations
- **CMMI Strong Start Initiative**
 - Measurement of outcomes in preterm birth and cost of care, along with other outcomes of interest

Data Systems and Measurement Knowledge Gaps

- ❑ Birth Certificate does not capture planned home birth transferred to hospital**
- ❑ Intended place of birth is not captured for Hospital or Birthing Center births on the birth certificate**
- ❑ Very large numbers are needed to detect differences in perinatal mortality (No RCTs of sufficient size)**
- ❑ No uniform data platform to adequately compare birth settings**

Cost, Value, and Reimbursement Issues

What have we learned?

- ❑ **Medicaid is payer for 40% of US births**
- ❑ **CMMI is realigning incentives to reward providers for lower cost, high quality care**
- ❑ **Medicaid, in some states, does not cover home births**
 - State-state variability limits the ability to create a national agenda around this issue
- ❑ **Washington state Medicaid expenditures for hospital-based cesarean and vaginal births were higher than birth center or home births**

Cost, Value and Reimbursement Issues

Knowledge Gaps

- ❑ **Not a lot of data from Medicaid MCOs**
- ❑ **Cost-comparison data may not include all costs associated with each birth setting**
- ❑ **National-level cost data is not available**
 - Variability in reimbursement from state-state
 - Variability in linkage of Medicaid claims to vital records data

FUTURE RESEARCH NEEDS

**Where do we go
from here?**



Future Research Needs: Where do we go from here?

❑ Randomized controlled trials

- Freestanding birthing centers
- Other birth settings (Snoezelen room, Ambient room)
- Impact of interventions in the hospital setting

❑ Other studies

- Evaluation of organizational models of care in all settings
- Most effective methods of transitioning care from out-of-hospital settings to the hospital
- Impact of transfer on women and care providers
- Determination of predictors of neonatal and maternal complications
- Evaluation of potential unintended impact of intrapartum care processes

Future Research Needs: Where do we go from here?

□ Other Studies

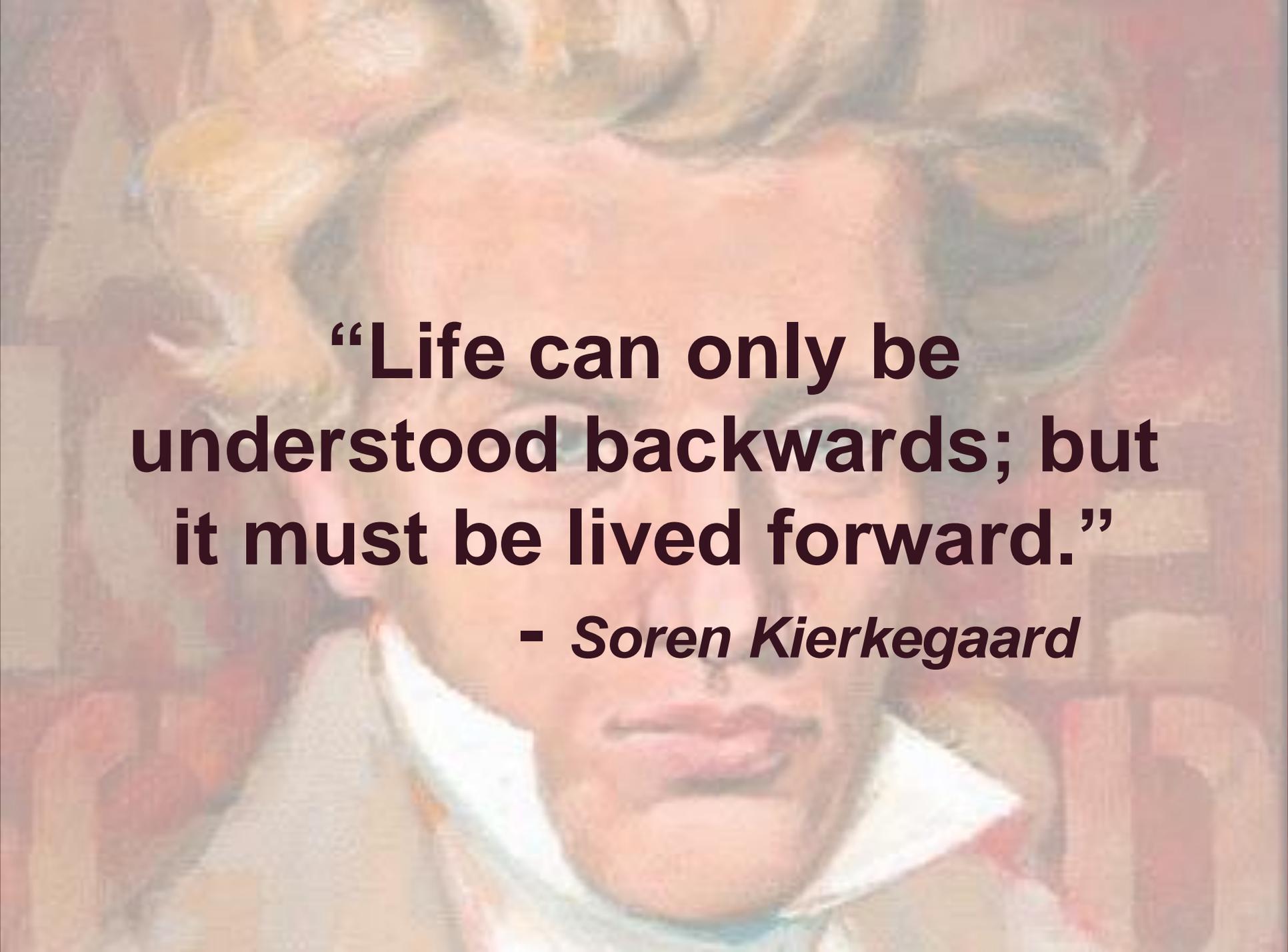
- Cost assessment of birth settings
- Cost-effectiveness analyses of birth settings
- Access to care in various birth settings
- Evaluation of continuity of caregiver
- Evaluation of the experience of maternity care in different settings (Consumer Assessment of Healthcare Providers and Systems)
- Environment and neuroendocrine immune interactions/physiologic responses

Other Needs: Where do we go from here?

- ❑ Maintenance and support of the National Vital Statistics System**
 - Measurement of transfer to hospital care
- ❑ Measurement and reporting of perinatal morbidity and mortality for all birth settings**
 - Passive/Active surveillance
 - State-based review committees
- ❑ Development of clear protocols for consultation and transfer of care**
- ❑ Development of risk assessment tools for maternal morbidity and mortality**

Other Needs: Where do we go from here?

- ❑ Development of consistent policies for education, certification and licensing of care providers**
- ❑ Address cost/reimbursement issues for care provided out-of-hospital**
- ❑ Increase efforts for interprofessional education, communication, and interaction**
- ❑ Involve patients in every step of the process**



“Life can only be understood backwards; but it must be lived forward.”

- *Soren Kierkegaard*

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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