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Background: In the United States, antibiotic resistance complicates serious infections in over 2 million people a year, leading to health and economic impacts. Because 80% of antibiotics are sold for animal production, concern is growing over livestock's contribution to antibiotic resistance in humans. Although many bacterial species that cause pneumonia are found in livestock facilities, the potential impact of livestock production on antibiotic resistant pneumonia has been largely unexplored. This study aims to determine the antibiotic resistance rate in bacterial pneumonia (BP) in the US vulnerable population and its spatio-temporal pattern, focusing on *Streptococcus pneumoniae* (ICD9CM: 481) and *Pseudomonas* spp. (ICD9CM: 482.1) and resistance to the top antibiotic classes in livestock production, tetracyclines and penicillins.

Methods: We Abstracted all hospitalization records related to pneumonia (ICD9-CM Codes 480-488) from the Centers for Medicare and Medicaid Services (CMS) dataset for years 1991- 2006 in adults aged 65 and older. Each record contains information on 10 diagnostic codes, including laboratory-confirmed resistance, residence zip code, average length of stay, and direct charges.

Findings: Out of 16,363,215 hospitalizations related to pneumonia, 3,231,256 (19.7%) cases were due to BP. *S. pneumoniae* and *Pseudomonas* spp. were the most common causes of BP and responsible for 516,634 (15.9%) and 465,295 (14.3%) cases, respectively, of which 0.65% and 1.54% of cases were resistant. Of these, 3.4% and 6.8% were multi-drug resistant, respectively. A resistance rate of 4.3% among BP hospitalizations was driven by *Staphylococcus aureus*, associated with over 20% of resistant cases. The proportion of resistant BP cases increased by 0.5% per year. In 5 states (CT, WV, KY, CA, NC) the proportion of resistant BP exceeded the national average by 20%.

Interpretation: Although *S. pneumoniae* is not common to farms, it may derive antibiotic resistance from emissions, such as through horizontal gene transfer. *Pseudomonas* spp. have been detected in livestock facilities and show potential for zoonotic transmission. Many risk factors may contribute to the high rate of resistant BP, including high human antibiotic use (as in KY and WV), high animal productions (as in NC and CA, top swine and dairy producers, respectively), or regulations that influence the extent contaminants enter the environment (as CA's weak requirements for NPDES permits). Such risk factors must be further explored. We are now correlating this dataset spatially to the county level livestock density derived from the USDA NASS Annual Surveys and Agricultural Census. As developed previously by Jagai et al, the livestock data combined with human population census allows creation of four exposure categories to compare rates of antibiotic resistance across counties with high/ low livestock and high/ low human density. The results of the analysis will be presented.

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Abstract #: 01SEDH015

Meanings of fatherhood in urban Tajikistan

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Background: Increasing attention has been devoted to understanding the impact of fathers' involvement with their children on health. Available literature on fatherhood in countries throughout the

world is limited, particularly in Asian Muslim societies. This formative study aimed to begin to fill that gap with research on urban Tajik fathers' perspectives about their paternal roles, their meanings of being a "good father", as well as their conceptualizations of the rewards, constraints and difficulties of fatherhood.

Methods: Through personal contacts and snowball sampling, 30 fathers with children ages 0 to 19 years old living in an urban area of Tajikistan were recruited to participate in the study. The first author conducted open-ended interviews in Russian using Skype or in person using a pre-defined interview guide that focused on the following themes: fathers' childcare responsibilities, definition of a "good father", the best and most difficult thing about being a father and key fatherhood constraints. Interviews lasted, on average, 20 minutes. The thematic analysis method guided data coding and analysis.

Findings: Respondents ranged from 28 to 59 years old and had one to five children. Using Palkovitz's conceptual framework on parental involvement, we clustered responses regarding respondents' childcare responsibilities into three broad domains: behavioral domain (e.g., shared activities, teaching and educating, communication, providing), affective domain (e.g., thought processes and monitoring) and cognitive domain (e.g., affection and emotional support). Results also revealed that respondents' definitions of a "good father" centered on five axes: (1) provider, (2) mentor/teacher, (3) nurturer, (4) care giver and (5) friend. Fathers identified several constraints that affect their fatherhood experiences, including work and education responsibilities, age and gender of their children, responsibility of fatherhood, effective disciplinary approaches and inability to meet children's expectations. Most respondents commented on the joy, happiness, prosperity, inspiration and support fatherhood brought to them.

Interpretation: Our findings provide opportunities for service providers and public health experts to better understand how urban Tajik fathers define their paternal responsibilities and the factors that are shaping their fatherhood experiences. These results may be useful for policy makers to define policies and programs that should be implemented in order to reduce gender disparities in care-giving practices in families and to encourage fathers to be more involved in childcare. The results provide a foundation for future research.

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High uptake of a women-only and sex work-specific drop in centre: independently linked to sexual and reproductive health care for sex workers

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Background: Women sex workers (SWs) face high sexual and reproductive health (SRH) disparities globally, and there has been increasing recognition of the need for women-centred care and sex work tailored services to address these disparities. Most successful strategies to improve SWs' access to HIV care have been based on community empowerment models in low and middle-income country settings. This study longitudinally examined the uptake of a women-only and sex-work-specific drop-in service (WISH Drop-In Center) and its impact on SWs' access to SRH services.

Methods: Data were drawn from a community-based, prospective cohort of 547 women SWs (2010-2013), known as AESHA (An Evaluation of Sex Workers Health Access), in Vancouver, British

Columbia, Canada. The participants were 14 years of age or older, female including transgender women, and exchanged sex for money or resources within the last 30 days of the recruitment. WISH-Drop-In is a women-only and sex-work tailored service organization providing low threshold services such as hot meals, showers, harm reduction supplies and referrals to health services. After verbal and written informed consent, interview-administered questionnaires were completed and the results were stratified according to the use of WISH Drop-In Center. Descriptive, bivariate and multivariable logistic regression analyses using Generalized Estimating Equations identified correlates of WISH utilization over a 30-month period. The study holds ethical approval through Providence Health Care/University of British Columbia Research Ethics Board, and is conducted according to the principles of the Declaration of Helsinki and Canadian Tri-Council Policy guidelines.

Findings: Of 547 SWs, 60% (n=330) utilized WISH services over the 30-month period. In longitudinal multivariable GEE analysis, use of WISH was independently correlated with older age (AOR 1.04, 95% CI: 1.03-1.06), Aboriginal ancestry (AOR 2.18, 95% CI: 1.61-2.95), accessing SRH services (AOR 1.65, 95% CI: 1.35-2.02), injecting drugs (AOR 1.67, 95% CI: 1.29-2.17) and exchanging sex directly for drugs (AOR 1.40, 95% CI: 1.15-1.71).

Interpretation: Results demonstrate high uptake of a sex work specific drop-in space for marginalized SW and suggest that women-centred and low-threshold drop-in services can effectively link marginalized women to SRH services. Given the substantial gaps in sexual and reproductive care for SWs globally, these findings suggest a critical need for policy and program support so scale up low-threshold and SW-specific models for integrated SRH, alongside community and social support models. Limitation to the study is the challenge of achieving a representative sample due to the isolated and marginalized nature of SWs. However, we used time location sampling and community mapping to ensure broad representation of SWs from all street and off-street venues.

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Combining human and livestock vaccination days in pastoralist communities: A feasibility study

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Program/Project Purpose: Currently, an estimated 180 million people are members of pastoralist societies worldwide, moving with their herds irrespective of country borders. Their nomadic lifestyle makes it difficult to reach human and animal vaccination rates that create population resistance against disease. The One Health framework advocates for increased collaboration between veterinary and human medicine in order to solve a variety of public health dilemmas. Coordinating the immunization days of children and livestock advances this idea and may be able to improve childhood vaccination rates while at the same time controlling the spread of highly infectious livestock diseases.

Structure/Method/Design: In order to understand the potential of combined vaccination campaigns, we reviewed the few past attempts using qualitative analyses. Results from the limited availability of previous trials showed that combined vaccination days led to better attendance and decreased overall vaccination costs when compared to

child-specific vaccine days, however with inconsistent documentation of vaccine recipients. Additionally, we compiled and compared human and livestock vaccination rates, schedules and needs in the target pastoralist populations.

Outcomes & Evaluation: Using the two main tools outlines above, we aim to better define the need and refine effective strategies for future trials. Verbal support of combined vaccination days has been received from multiple organizations, indicating that tangible support may also be available with innovative collaboration between federal and nongovernmental agencies.

Going Forward: More efficient discussions are needed between veterinarians and doctors about aligning livestock and human vaccine schedules. Pooling these resources will increase the overall health of pastoralist populations.

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Maternal and household characteristics as determinants of maternal health seeking along the continuum of care in rural Tanzania

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Background: Four antenatal care (ANC) visits, delivery in a health facility, and three postnatal care (PNC) visits are the global recommendations for mothers to optimize maternal health outcomes. [i] While these are each vital to maternal health, most existing studies analyze health seeking behavior for each level separately (ANC, health facility delivery, and PNC), without assessing health seeking along the full continuum of care. This study aims to characterize what determines a mother's achievement of the recommended maternal health visits in three districts of rural Tanzania to illuminate strategic programmatic interventions to improve maternal health. [ii] WHO. (1998). Postpartum care of the mother and newborn: a practical guide. Geneva: World Health Organization, Maternal and Newborn Health/Safe Motherhood Unit.

Methods: Data for this study were extracted from a cross-sectional household survey conducted between May and July 2011 by the Connect Project—a randomized cluster trial implemented by Columbia University and Ifakara Health Institute in Rufiji, Ulanga, and Kilombero districts of Tanzania to test the impact of paid community health workers on maternal and child health. 2,183 households yielded 915 women who were eligible for analysis since they had given birth within two years preceding the survey. Univariate, bivariate, and multivariate multinomial logistic regression analyses were utilized to assess relationships between maternal and household-level characteristics and maternal health seeking behavior. The outcome of interest was defined into three categories: highest (recommended): 4+ ANC visits and delivery in health facility and 1+ PNC; lowest: 0-3 ANC and delivery outside of health facility and 0-1 PNC; middle: all other care patterns.

Findings: Preliminary findings indicate that 19.1% of women achieved the highest level, 67.9% achieved the middle level, and 13.0% achieved the lowest level. Multivariate analysis revealed parity as a significant predictor of care-seeking with women in their first pregnancy being 5.73 times (95% CI: 1.99-15.96; $p < 0.001$) more likely to achieve the recommended level of care and 3.49 times (95% CI: 1.37-9.38; $p < 0.01$) more likely to achieve the middle level of care than the lowest level. Wealth Index was also a significant predictor of