



37th EPHA Annual Scientific Conference

From 15 – 17 March 2026

Abstract Book

**Main Theme: Harnessing the Power of Local Data and
Emerging Technologies for Universal Health Coverage (UHC)**

37th EPHA Annual Scientific Conference



Abstract Book

**Main Theme: Harnessing the Power of Local Data and Emerging
Technologies for Universal Health Coverage (UHC)**

From 15 – 17 March 2026

EPHA House Kebena,

Addis Ababa

Compiled by:

Samrawit Kibneh

Edited by:

Prof. Alemayehu Haddis

Dr. Bethel Solomon

Zewd Teferra

Ethiopian Public Health Association

Tel. +251-11-416-6083/41

Fax: +251-11-416-6086

P. O. Box: 7117

E-mail: info@etpha.org

Website: www.etpha.org

Table of Contents

| | |
|---|----|
| Message from the Executive Director | 1 |
| Oral Presentations | 2 |
| Health System..... | 3 |
| 1. Bridging the Gap between Access and Trust: Population Confidence in Ethiopia’s Health System (PVS 2024/25). <i>Ashenif Tadele Ayele</i> | 3 |
| 2. Strengthening Multisectoral Nutrition Coordination in Ethiopia: A Delphi Study on Barriers, Enablers, and Strategic Priorities. <i>Taddese Alemu Zerfu</i> | 4 |
| 3. Time Trend Prediction of MDR/RR-TB in Northeast Ethiopia (2015-2023). <i>Enkuneh Atnafu Abegaz</i> | 6 |
| 4. Does Life Expectancy Vary by Disability Status in Low and Middle-Income Countries?: A Systematic Review and Meta-analysis. <i>Desta Debalkie Atnafu</i> | 7 |
| 5. Machine Learning Classification of Maternal Adversity and its Association with Child Morbidity across 37 Sub-Saharan African countries. <i>Abel Fekadu Dadi</i> | 8 |
| 6. Ethical Dilemmas and Decision-Making in Emergency and Critical Care Nursing in Western Amhara Region, Northwest Ethiopia: A Multi-Method Qualitative Study. <i>Abebe Dilie Afenigus</i> | 9 |
| 7. Functional Impairment and Associated Factors among Adults with Upper Extremity Fractures at Comprehensive Specialized Hospitals in Gojjam Zones, Northwest Ethiopia: Ordinal Logistic Regression Analysis. <i>Abebe Dilie Afenigus</i> | 11 |
| 8. Maternal Fine Particulate Matter (PM2.5) Exposure and Adverse Pregnancy Outcomes in Rural Butajira, Ethiopia: A Population-Based Prospective Cohort Study. <i>Sisay Shine Tegegnework</i> | 12 |
| 9. Quality of Antenatal Care Services: A Systematic Review and Meta-Analysis. <i>Leltework Wondmagegn</i> | 13 |
| RMNCH..... | 15 |
| 10. Improving ANC8 Contact Coverage at Afar Region Telalak Deroesi Health Center. <i>Rahel Degefa Gizaw</i> | 15 |
| 11. Determinants of Late ANC Initiation among Pregnant Women in Rural Pastoralist Community of Gomole District, Borena zone, Southern Ethiopia. <i>Wagaye Alemu Zenebe</i> .. | 16 |
| 12. Unequal Burden: Spatial Disparities and Determinants of Anemia among Pregnant Women in Sub-Saharan Africa (2018–2024) based on Bayesian Spatial Analysis. <i>Woldeteklehaymanot Kassahun Dagne</i> | 17 |
| 13. Determinants of Contraceptive and Sexual Empowerment among Pregnant and Postpartum Women in Ethiopia: A Partial Proportional Odds Model. <i>Tsegaye Lolaso Lenjebo</i> | 19 |

| | | |
|-----|--|----|
| 14. | Closing the Equity Gap: A Controlled Evaluation of Task-Shifting Life-Saving MNH Interventions to Village Health Leaders in Ethiopia. <i>Biruk Bogale Wolde</i> | 20 |
| 15. | Reorienting Family Planning for Sustainable Development and Demographic Resilience: A Macro-Level Assessment of Facilitators and Impediments to Fertility Transition in Ethiopia. <i>Tesfay Brhane Gebremarian</i> | 21 |
| 16. | The Unseen Danger: The Impact of Early Pregnancy Anemia on Pregnancy Outcome in Southwest Ethiopia: Evidence from a Prospective Cohort Study. <i>Abdi Geda</i> | 23 |
| | Digital Health..... | 24 |
| 17. | AI and Digital Health for Resilient and Equitable Care: Bridging Data Gaps in Maternal, Child, and Infectious Disease Services in Crisis-Affected Ethiopia. <i>Derbabaw Fentie Shiferaw</i> | 24 |
| 18. | Leveraging Local Health Data and AI-Enabled Digital Systems to Strengthen Evidence-Based Decision-Making for Universal Health Coverage in Northern Ethiopia. <i>Tsigabu Atsbeha kelelom</i> | 26 |
| 19. | Effectiveness of Tailored Daily SMS Reminders on Antiretroviral Therapy Adherence among Adolescents Living with HIV in Southern Ethiopia: A Randomized Controlled Trial. <i>Abayneh Tunje Tanga</i> | 27 |
| 20. | Unveiling the Role of DHIS2 in Enhancing Data Quality and Accessibility in Primary Healthcare Facilities: Evidence from Ethiopia. <i>Taddese Alemu Zerfu</i> | 29 |
| 21. | The Impact of Ethiopia’s Health Information Revolution on Quality of Maternity Care in Ethiopia: Propensity Score Matching Analysis. <i>Adane Kebede Tesega</i> | 30 |
| 22. | Short Mobile Text Reminders as Cost-Effective Strategies for Improving Health-Related Adjusted Quality of Live in Adolescents Living with HIV in Ethiopia. <i>Abayneh Tunje Tanga</i> | 32 |
| 23. | The Feasibility of Antenatal Exercise Using an Innovative Exergame Program During Pregnancy. <i>Gemechu Kumera Wirtu</i> | 33 |
| 24. | Machine Learning-Based Prediction of Blood Pressure Screening during Pregnancy in Ethiopia: Evidence from the Recent EDHS. <i>Ali Yimer Mohammed</i> | 34 |
| 25. | Willingness to Receive mHealth Services among Patients with Diabetes on Chronic Follow-up in Public Hospitals in Eastern Ethiopia: Multicenter Mixed Method Study. <i>Dawit Fufa</i> | 36 |
| | WASH, Climate Change, and Environmental Health | 37 |
| 26. | Tracing the Water–Beef Safety Nexus: Assessing Water Quality's Role in Beef Contamination from Slaughterhouse to Plate, in Southwest Ethiopia. <i>Girma Mamo Zegene</i> | 37 |
| 27. | Escalating Burden of Malaria in Pregnancy in the Amhara Region, Ethiopia: Spatiotemporal Patterns, Early-Warning Insights and Predictors (2018-2024). <i>Kassawmar Angaw Bogale</i> | 38 |

| | |
|--|----|
| 28. Fecal Carriage, Risk Factors and Antimicrobial Susceptibility Patterns of Salmonella from Lactating Cows and Contact Humans at the Dairy Farm Level in Mekelle and Southeast Zones of Tigray, Northern Ethiopia. <i>Atsebaha Gebrekidan Kahsay</i> | 40 |
| 29. Respiratory Symptoms among Hospitality Industry Employees: A Systematic Review and Meta-Analysis. <i>Yimer Mamaye Belete</i> | 41 |
| Nutrition and Food Security | 43 |
| 30. Mapping Mixed Milk Feeding Practice and its Spatial Predictors among Children Aged 0-6 Months in Ethiopia: A Geographically Weighted Regression Analysis. <i>Abel Endawkie Tareke</i> | 43 |
| 31. Nutritional Benefits and Potential Health Risks of Moringa <i>Stenopetala</i> Consumption: A Scoping Review. <i>Tesfaye Dagne Weldemariam</i> | 44 |
| 32. Impact of an Educational Intervention on the Feeding Practices and Nutritional Status of Children Aged 6-23 Months during and after Common Childhood Illnesses: A Clustered Randomized Controlled Trial. <i>Mastewal Erango Ersado</i> | 46 |
| 33. Modeling Determinants of Women’s Decision-Making Autonomy on Agriculture and Household Matters in Rural Ethiopia: A Mixed-Effects Beta Regression Tree Analysis. <i>Teshome Kabeta Kebeta</i> | 47 |
| 34. Dynamic Copula Bayesian Network Predictive Model for Assessing the Impact of Initiative Programs on Child Undernutrition in Ethiopia, 2009–2016. <i>Getnet Bogale Begashaw</i> | 49 |
| 35. Bridging the Gap: A Data-Driven Strategy for Integrating Nutrition into Health Workforce Education to Advance Universal Health Coverage (UHC). <i>Derbabaw Fentie Shiferaw</i> | 50 |
| Global Health Security | 52 |
| 36. Estimating Childhood Tuberculosis Incidence and Under-Reporting in Gedeo Zone, Ethiopia: A Bayesian Hidden Markov Model. <i>Solomon Hailemariam Tesfaye</i> | 52 |
| 37. Cross-Sectoral Surveillance of ESBL-Producing <i>Escherichia coli</i> and <i>Salmonella</i> spp. in Humans, Animals, Vegetables, and the Environment in Ethiopia: A One Health Study. <i>Shemse Sebre Muktar</i> | 53 |
| 38. Resurgence of Malaria in the Amhara Region, Ethiopia (2014–2024): Trends, Spatial Expansion, and Control Challenges. <i>Mastewal Worku Lake</i> | 54 |
| 39. Pertussis Trends and Its Correlation with Vaccination Coverage in Eastern Africa, 1990–2021: Analysis of Global Burden of Disease 2021. <i>Mengistie Kassahun Tariku</i> | 56 |
| 40. Trends of Acute Hepatitis B infection in Ethiopia from 1990 to 2021 and its Projection to 2031: Join Point Regression Analysis on GBD 2021 Study. <i>Taye Abuhay Zewale</i> | 57 |
| Poster Presentations | 59 |
| Health Systems | 60 |

| | |
|---|----|
| 1. Adaptation, Validation, and Development of an 8-Item Short Form of the HIV Stigma Scale among Adolescents and Young People Living with HIV. <i>Melkamu Merid Mengesha</i> | 60 |
| 2. A New Hepatitis Delta Virus Hotspot in Ethiopia: A Multicenter Study. <i>Teklu Shiferaw Simbo</i> | 61 |
| 3. Challenges in Implementing the WHO-Recommended Package of Care for Advanced HIV Disease in Resource-Constrained Settings. <i>Temesgen Leka Lerango</i> | 62 |
| 4. Health Information System in Primary Health Care Units of the Central Zone, Tigray, Northern Ethiopia. <i>Letekirstos Gebereegziabher Gebretsadik</i> | 64 |
| 5. Improved Community-Based Pediatric HIV Case Identification through Social Network-Assisted Index Testing (SN-AIT) in the Amhara Region, Ethiopia. <i>Anteneh Wohabie Tsega</i> | 65 |
| 6. Are Primary Healthcare Facilities in Ethiopia Complying with Accessibility Standards?: An accessibility audit of health facilities in Bahir Dar City. <i>Desta Debalkie Atnafu</i> | 67 |
| 7. Utilization and Associated Factors of the Community-Based Differentiated Service Delivery Model among ART Users in Dessie Public Health Facilities, Northeast Ethiopia. <i>Endalkachew Mesfin Gebeyehu</i> | 68 |
| 8. Implementation of Continuous Quality Improvement Projects at Public Hospitals in Eastern Ethiopia. <i>Dawit Fufa</i> | 69 |
| 9. Urban Health Extension Workers in Prevention and Early Identification of Disability in the Case of Addis Ababa City, Analysis Related of Policy and Practice. <i>Asnakech Zewdie Degefe</i> | 71 |
| 10. Individual and System-Level Intervention Strategies to Promote Active Living among Office-Based Employees in Ethiopia. <i>Abel Negussie Gebregziabher</i> | 73 |
| 11. Integrated Malaria Service Uptake and its Determinants among Pregnant Women in Ethiopia: Multi-level Analysis of 2021/22 National Service Provision Assessment. <i>Kassawmar Angaw Bogale</i> | 74 |
| 12. Epidemiological Patterns and Regional Variation of Major Diseases in Ethiopia: Strategic Implications for Public Health Response. <i>Shirega Minuye</i> | 75 |
| 13. Exploring the Integration of Social and Behavior Change Communication into Targeted NTD Mass Drug Administration Campaigns: Insights and Best Practices from Jimma, Ethiopia. <i>Daba Abdissa Keneni</i> | 77 |
| 14. Low Prevalence of Diabetes Mellitus among Older People in Rural Sidama in Ethiopia: A Two-Step Community-Based Cross-Sectional Study. <i>Desalegn Tsegaw Hibstu</i> | 78 |
| RMNCH..... | 79 |

| | |
|---|----|
| 15. Maternal and Neonatal Outcomes Associated with Cesarean Section in Low- and Middle-Income Countries: Systematic Review and Meta-Analysis. <i>Tomas Yeheyis Ferede</i> | 79 |
| 16. Effect of Household Food Insecurity on Birth Weight: A Causal Effect Analysis Using Propensity Score Matching. <i>Mohamedawel Mohamedniguss Ebrahim</i> | 81 |
| 17. From Barriers to Solutions: Maternal Continuum of Care Utilization in Rural Ethiopia—Findings from a Cross-Sectional Household Survey. <i>Aleme Mekuria Belachew</i> | 82 |
| 18. Effectiveness of Baby Friendly Hospital Initiative on Early Initiation and Exclusive Breastfeeding Practice: Systematic Review and Meta-Analysis. <i>Mahilet Berhanu Habte</i> | 84 |
| 19. Trends and Disparities in Antenatal Care Utilization: A Multilevel Analysis of Four-plus and Eight-plus ANC Visits among Urban Women in Ethiopia. <i>Worku Dechassa Heyi</i> | 85 |
| 20. Help-Seeking Behavior and Quality of Life among Women with Stress, Anxiety, and Depression in Northwest Ethiopia: A Community-Based Study. <i>Shegaye Shumet Mekonen</i> | 86 |
| 21. Time to First Dose of Measles-Containing Vaccine and Associated Factors Among Infants in Ethiopia: A Survival Analysis from Performance Monitoring for Action Data. <i>Eyob Tilahun Abeje</i> | 88 |
| 22. Effect of Health Belief Model-Based Education for Companions of Choice on Adherence to Support Roles: A Cluster Randomized Controlled Trial. <i>Gedamu Abera Zegeye</i> | 89 |
| 23. Bridging Policy and Practice: A Scoping Review of Maternal Health Policies and Community-Level Interventions for Pre-eclampsia in Ethiopia. <i>Trhas Tadesse Berhe</i> | 90 |
| 24. Food Crises and Coping Strategies in War-Affected Communities in Tigray, Ethiopia: A Community-Based Cross-Sectional Study among Households. <i>Hadush Gebregziabher Tsegay</i> | 92 |
| 25. Lived Experience of Self-Induced Abortion Among Female Students of Dilla University South Ethiopia: A Qualitative Phenomenological Study. <i>Yohannes Addisu Wondimagegne</i> | 93 |
| Digital Health..... | 94 |
| 26. Tracing the Epidemiological Shift in Southwestern Ethiopia: A 14-year Analysis of the Gilgel-Gibe Field Research Center Database. <i>Bikila Regassa Feyisa</i> | 94 |
| 27. Automatic Detection of Myocardial Infarction Diseases from Electrocardiogram Signal Based on Non-linear Entropy features and Adaptive-KNN Machine Learning. <i>Henok Mezemr Besfat</i> | 96 |

| | | |
|-----|---|-----|
| 28. | Machine Learning Algorithms for Predicting Surgical Site Infections: Insights from Prospectively Collected Data among General Surgery Patients in Amhara Region. <i>Meron Asmamaw</i> | 97 |
| 29. | Problematic Alcohol Use in Ethiopia: A Community-Based Cross-Sectional Study. <i>Kefyalew Dagne</i> | 98 |
| 30. | Exploring Digital Innovations and Artificial Intelligence in Advancing the One Health Approach: A Systematic Review and Meta-Analysis. <i>Derbabaw Fentie</i> | 100 |
| 31. | Digital Health Literacy among Pregnant Women in Jimma City: Evidence from a Convergent Parallel Mixed-Methods Study. <i>Bekehu Tekla Worku</i> | 101 |
| 32. | Forecasting the Incidence of Leishmaniasis in Ethiopia: A Contextual Analysis of Conflict and Health Insecurity Using GBD 2021 Data. <i>Jenberu Mekurianew Kelkay</i> | 102 |
| 33. | Predicting Determinants of Early Discharge in Health Facility after Birth in East Africa. A Machine Learning Approach. <i>Geleta Nenko Dube</i> | 104 |
| | WASH, Climate Change and Environmental Health | 105 |
| 34. | Electronic Waste Management Practice, Barriers and Potential Challenges among Different Institutions in Gedeo Zone South Ethiopia: Explanatory Sequential Mixed Methods Study. <i>Mekonnen Birhanie Aregu</i> | 105 |
| 35. | Bacteriological Quality, Hygiene Practices, and Supply Chain Challenges of Raw Meat in Dilla Town, South Ethiopia: An Explanatory Sequential Mixed-Methods Study. <i>Mekonnen Birhanie Aregu</i> | 106 |
| | Nutrition and Food Security | 108 |
| 36. | Effect of High-Intensity Motor Learning and Dietary Supplementation on Muscular Fitness and Motor Skills of 5-7-Year-Old Children with Moderate Acute Malnutrition in Jimma Town, South-West, Ethiopia: A Cluster-Randomized Controlled Trial. <i>Melese Sinaga</i> | 108 |
| 37. | Severity of Wasting Among Children Aged 6–59 Months in East Africa: A Multilevel Proportional Odds Analysis of DHS Data from 2012-2022. <i>Masrie Getnet Abate</i> | 109 |
| 38. | Animal Source Food Consumption Level and Its Determinant among Pregnant Women in Gamo Zone, South Ethiopia: Using Bayesian Multilevel Mixed Effect Model. <i>Teshale Fikadu Gebabo</i> | 112 |
| 39. | Pooled Prevalence of Optimal Complementary Feeding Practice and its Determinants among 6-23 months old children in Ethiopia: A Systematic Review and Meta-analysis. <i>Mastewal Erango Ersado</i> | 113 |
| 40. | The Ecotourism–Food Security Nexus: Evidence and Policy Implications from Ethiopia. <i>Shirega Minuye</i> | 114 |
| | Global Health Security..... | 115 |

| | | |
|-----|--|-----|
| 41. | Mental Health Factors and Suicidal Ideation among Students in Africa: A Systematic Review and Meta-Analysis. <i>Anmut Endalkachew Bezie</i> | 115 |
| 42. | Co-occurrence of Native and Invasive Malaria Vectors in Anthropogenic Habitats in Metehara, Ethiopia: Opportunities for Urban Malaria Control. <i>Temesgen Ashine Amenu</i> . | 117 |
| 43. | Spatial Distribution and Vaccination Status of Measles Cases in Ethiopia: A Systematic Review and Meta-Analysis. <i>Mengistie Kassahun Tariku</i> | 118 |
| 44. | A Comparative Population-Based Study of Diabetes Mellitus and Its Risk Factors among Adults in Southwest Ethiopia. <i>Birhanu Yadecha Dibaba</i> | 119 |
| 45. | Risk Factors for Early Mortality in HIV-Positive Adults on Antiretroviral Therapy: Insights from Health Facility-Based HIV Cohort in Ethiopia. <i>Birhanu Yadecha Dibaba</i> ... | 121 |
| 46. | Non-fatal Health Outcomes of Low Back Pain among People Aged 55 Years and above in Eastern Sub-Saharan Africa, from 1990 to 2023. <i>Yohannes Addisu Wondimagegne</i> | 122 |

Message from the Executive Director

Dear contributors,

It is a great pleasure to congratulate everyone whose paper was accepted for the 37th EPHA's Annual Conference, which gathers the important scientific contributions and outstanding work of professionals, practitioners, and researchers dedicated to advancing knowledge and enhancing practice in the field of public health.

The main theme of this year's conference is "[Harnessing the Power of Local Data and Emerging Technologies for Universal Health Coverage \(UHC\)](#)" highlights the critical role that evidence and innovation play in strengthening health systems and improving equitable access to quality health services and assuring financial protection. As countries strive to achieve Universal Health Coverage (UHC), the effective use of locally generated data and emerging technologies has become increasingly important in guiding policies, improving service delivery and ensuring that no one is left behind.

This Abstract Book features 40 oral and 46 poster presentations, reflecting a wide range of research findings, program experiences and innovative approaches from researchers and practitioners from wide corners of the Country. These contributions demonstrate the growing commitment of our scientific community to generating locally relevant evidence that informs policy, strengthens programs and improves health outcomes.

I would like to extend my sincere appreciation to all authors, reviewers, track directors and members of the scientific committee for their dedication and hard work in preparing and reviewing these abstracts. My gratitude also goes to our partners and EPHA secretariat whose continued collaboration makes this conference possible.

I encourage all participants to actively engage in the presentations and discussions throughout the conference.

I wish you all a productive and successful presentations.

Respectfully,

Alemayehu Mekonnen (MD, MPH)

Oral Presentations

Health System

Abs. 1

1. Bridging the Gap between Access and Trust: Population Confidence in Ethiopia's Health System (PVS 2024/25). *Ashenif Tadele Ayele*

Background:

Population confidence is a cornerstone of Universal Health Coverage (UHC), reflecting a system's ability to provide accessible, affordable, and high-quality care. This study evaluates population-level confidence in Ethiopia's health system and identifies the determinants of perceived quality and financial protection using data from the 2024/25 People's Voice Survey (PVS).

Objective and Methodology:

We analyzed cross-sectional data from the second round of the PVS, conducted between December 2024 and January 2025. Health system performance was assessed across the WHO UHC framework domains, including access, effectiveness, and user experience. Descriptive statistics characterized system performance, while multivariate logistic regression identified factors associated with confidence in obtaining and affording quality care during severe illness.

Results:

While 85% of respondents reported high physical access to care, only 54% expressed confidence in obtaining quality services, and just 48% felt confident they could afford care if they became seriously ill. Only 20% of participants reported a "very good" user experience, with significantly lower satisfaction among low-income groups. However, 72% believed the government considers public opinion in health system reforms. Multivariate analysis revealed that higher confidence was significantly associated with younger age (AOR 2.86; 95% CI 1.80–4.55), health insurance coverage (AOR 1.76; 95% CI 1.13–2.75), and perceived government responsiveness to public input (AOR 2.75; 95% CI 1.71–4.43). Conversely, female respondents were less likely to express confidence (AOR 0.64; 95% CI 0.42–0.98).

Conclusion:

Despite high physical access, significant gaps remain in quality, affordability, and user experience within Ethiopia's health system. Population-level insights from the PVS highlight that building confidence requires more than infrastructure; it necessitates improving service quality, expanding insurance, and maintaining government responsiveness. These findings provide a vital benchmark for monitoring UHC progress and ensuring the health system remains accountable to the needs of the Ethiopian people.

Keywords:

People's Voice Survey, health system confidence, health system performance, universal health coverage, Ethiopia.

Abs. 2**2. Strengthening Multisectoral Nutrition Coordination in Ethiopia: A Delphi Study on Barriers, Enablers, and Strategic Priorities. *Taddese Alemu Zerfu*****Background:**

Malnutrition continues to pose a major public health and development challenge in Ethiopia, affecting child survival, maternal health, education, and national productivity. While the country has adopted several flagship policies and strategies - including the National Food and Nutrition Policy, the Seqota Declaration, and the establishment of a National Food and Nutrition Council - implementation remains hampered by weak multisectoral coordination, fragmented accountability, and limited subnational capacity. These gaps undermine the effectiveness of cross-sectoral nutrition action.

Objective and Methodology:

Objective: This study aimed to build expert consensus on actionable, scalable, and context-relevant strategies to improve multisectoral nutrition coordination in Ethiopia. The process sought to identify persistent barriers, highlight enabling conditions, and prioritize reforms that could support the institutionalization of a Common Results Framework (CRF) for nutrition governance and accountability. **Methods:** A two-round Delphi technique was employed, engaging a purposively selected panel of national and subnational experts across sectors such as health, agriculture, education, WASH, social protection,

and planning. In Round 1, qualitative data were collected through a structured open-ended questionnaire. Thematic content analysis identified nine overarching themes and over 30 sub-themes related to coordination challenges, enablers, and strategic recommendations. In Round 2, these insights were distilled into 57 Likert-scale statements rated by the same panel on a 5-point agreement scale. Consensus was defined as a mean score ≥ 4.0 with $\geq 75\%$ agreement.

Results:

Round 1 revealed deep-seated barriers to coordination, including weak institutional leadership, siloed planning, limited subnational capacity, fragmented monitoring systems, and inadequate stakeholder engagement. Respondents also emphasized the absence of clear mandates, poorly defined accountability lines, and competition among sectors - particularly between health and agriculture - as impediments to effective collaboration. Participants highlighted the importance of strong political commitment, neutral leadership bodies, integrated data systems, and community-level accountability as critical enablers of coordination. Successful past experiences, such as the Seqota Declaration's early gains, were cited as models for institutional innovation, while sub-national implementation challenges underscored the need for better alignment between national policies and local capacities. Round 2 findings validated and quantified the qualitative insights. All 57 statements exceeded the pre-defined consensus thresholds (mean ≥ 4.0 and $\geq 75\%$ agreement), confirming broad expert agreement across thematic areas. The top-rated domains were finance and human resources (mean = 4.79), monitoring, evaluation, and data use (mean = 4.77), and capacity building (mean = 4.74), indicating strong support for investments in sustainable funding, skilled personnel, and robust accountability systems. Institutionalization and data use culture also scored highly, underscoring the need to embed nutrition coordination within formal governance structures and operational routines. Substantial consensus was recorded on anchoring coordination in a politically neutral apex body, establishing dedicated coordination offices at federal and regional levels, and integrating nutrition into sectoral M&E systems. Other priority actions included prioritizing domestic financing over donor dependency, deploying trained focal persons across all administrative tiers, and implementing a unified Common Results Framework (CRF) to align targets and reporting across sectors. Notably, the highest-scoring individual item was "high-level political commitment" (mean = 4.91), reflecting the panel's shared belief that leadership and sustained attention from top decision-makers are essential to overcoming persistent coordination bottlenecks.

Conclusion:

The Delphi process revealed strong and convergent perspectives among experts from diverse sectors and governance levels, underscoring a shared understanding of the core challenges and opportunities in multisectoral nutrition coordination in Ethiopia. The results offer a practical and actionable roadmap to inform national policy implementation, institutional realignment, and strengthened coordination mechanisms at both federal and subnational levels. As Ethiopia moves forward with the implementation of its national food and nutrition strategies, these findings provide critical guidance for building a more coherent, accountable, and impactful nutrition governance system.

Keywords:

Multisectoral Coordination; Nutrition Governance; Delphi Study; Policy Implementation.

Abs. 3

3. Time Trend Prediction of MDR/RR-TB in Northeast Ethiopia (2015-2023). *Enkuneh Atnafu Abegaz*

Background:

Multidrug-resistant and rifampicin-resistant tuberculosis (MDR/RR-TB) represents a major public health threat and a significant obstacle to global TB control. Analysing trends and forecasting future patterns is critical for effective resource planning. However, the application of predictive modelling for MDR/RR-TB has not been widely explored in Ethiopia.

Objective and Methodology:

This study aimed to analyse the temporal trends and develop a forecasting model for MDR/RR-TB cases recorded at treatment initiation centres in Northeast Ethiopia between 2015 and 2023. A retrospective study of all MDR/RR-TB cases diagnosed from January 2015 to December 2023 in Northeast Ethiopia was conducted using data retrieved from six treatment initiation centers (TIC) registries. Data were collected via Kobo Toolbox and analysed with SPSS v27 for descriptive statistics. Seasonal ARIMA models were developed in R to assess trends and generate forecasts, with model selection based on AIC, BIC, and residual diagnostics. Data quality was ensured through verification and consistency checks.

Results:

From an initial 409 identified individuals, 372 were included in the final analysis after excluding transferred cases. Annual case counts demonstrated instability, with a notable rise between 2017 and 2019 (up to 63.6%) and a distinct decline during 2020–2021, followed by a sharp increase in early 2022. A clear seasonal pattern was observed, with case troughs occurring in August and peaks during the dry season (Bega), followed by a decline in December.

Conclusion:

MDR/RR-TB case trends in Northeast Ethiopia exhibited significant fluctuations over the study period. The pronounced decline in 2020–2021 was likely attributable to service disruptions from the COVID-19 pandemic and regional conflict, while the subsequent surge may reflect a recovery of case detection efforts and the conflict's impact on transmission. TB control programs should prioritize high-risk seasonal periods and ensure resilient systems for timely diagnosis and treatment access amidst external shocks.

Keywords:

MDR-TB, RR-TB, tuberculosis trends, time series analysis, ARIMA model, seasonal patterns, Northeast Ethiopia, predictive modelling, public health surveillance, treatment initiation centers, conflict-affected settings, COVID-19 impact, TB forecasting

Abs. 4**4. Does Life Expectancy Vary by Disability Status in Low and Middle-Income Countries?: A Systematic Review and Meta-analysis. *Desta Debalkie Atnafu*****Background:**

Over 1.3 billion people globally, with 80% in LMICs, face healthcare barriers, poorer health, and higher mortality due to disabilities, potentially reducing life expectancy (LE). Despite its importance, LE gaps for disabled individuals in LMICs lack systematic review.

Objective and Methodology:

To review and synthesize LE and years of life lost (YLL) estimates comparing people with disabilities to those without. A systematic review was conducted across six databases: Medline, Embase, Global Health, Web of Science, Scopus, and Cochrane Library. Data were analyzed with metafor packages of R 4.3.3. The study assessed heterogeneity with I² and publication bias with a funnel plot. Random-effects model estimated pooled mean LE and YLL as weighted averages. Subgroup and meta-regression analysis were performed to explore sources of data variability, and the risk of bias was evaluated using the JBI tool.

Results:

Twelve full-text articles were included in this meta-analysis. The pooled mean LE was lower in people with disabilities (57.98 years; 95% CI: 53.40, 62.95) compared with people without disabilities (70.86 years; 95% CI: 64.06, 78.38). The overall weighted years of YLL in people with disabilities was 15.84 years (95% CI: 11.1 – 22.61). There was no significant difference in YLL between men (16.33 years; 95% CI: 11.49-23.21) and women (13.7 years; 95% CI: 8.45 – 22.22).

Conclusion:

The average LE in people with disabilities was substantially lower compared to those without disabilities in LMICs. This inequity highlights that health systems and public health efforts are failing to meet the needs of people with disabilities, and must be improved to become more disability-inclusive. The study emphasizes the need for inclusive policies and robust research in the health system to address health disparities.

Abs. 5

5. Machine Learning Classification of Maternal Adversity and its Association with Child Morbidity across 37 Sub-Saharan African countries. *Abel Fekadu Dadi*

Background:

Maternal adversity is a critical determinant of child health and development. However, existing research has focused on isolated indicators of adversity, rather than adopting a holistic approach that reflects the complex nature of maternal stressors.

Objective and Methodology:

To develop and test a machine learning model that profiles maternal adversity and examines its association with child morbidity in sub-Saharan African (SSA) countries.

Results:

Based on data from 228,768 participants, we identified three distinct classes of maternal adversity: Normal (57.1%)— characterised by minimal or no adversity, Moderate (34.7%)— marked by the presence of some adversity indicators, and Severe (8.2%)—characterised by multiple intersecting adversity indicators. Children of mothers with moderate or severe adversity profiles experienced higher rates of morbidity compared to those with no adversity. The increase in waited odds ratio (95%CI) ranged from 10% (1.04, 1.16) to 36% (1.26, 1.47) for moderate adversity and from 20% (1.05, 1.37) to 26% (1.11, 1.44) for severe adversity. There is considerable variation in the effect of maternal adversity on child morbidity across SSA, with the odds of diarrhea exceeding twofold and undernutrition exceeding fivefold in Namibia and acute respiratory infection exceeding fourfold in Uganda.

Conclusion:

Our findings reveal that children of mothers facing moderate to severe adversity have significantly higher odds of morbidity, with substantial variation across SSA countries. This speaks to the need for early and context-specific adversity screening and interventions beyond clinical services.

Abs. 6

6. Ethical Dilemmas and Decision-Making in Emergency and Critical Care Nursing in Western Amhara Region, Northwest Ethiopia: A Multi-Method Qualitative Study. *Abebe Dilie Afenigus*

Background:

Ethical dilemmas in emergency and critical care nursing often involve complex decision-making that impacts patient outcomes, well-being of healthcare providers, and team dynamics. Understanding these dilemmas and the decision-making processes involved is crucial for improving nursing practices and patient outcomes in this context.

Objective and Methodology:

This study aims to explore the ethical dilemmas and decision-making processes of emergency and critical care nurses, using the Four Box. Method ethical decision-making framework. A multi-method qualitative approach was employed, incorporating in-depth individual interviews (IDI), focus group discussions (FGD), and case studies to capture diverse perspectives. Data were collected from 28 nurses working in emergency and critical care settings at Tibebe Ghion Specialized Hospital and Felege Hiwot Comprehensive Specialized Hospital through purposive sampling. The interviews and focus groups were audio recorded, transcribed verbatim in Amharic, translated into English, and entered into Open Code software for analysis. Inductive thematic analysis method was applied to analyze the data.

Results:

The study revealed several key ethical dilemmas faced by nurses, including balancing patient autonomy with beneficence, and the allocation of limited resources during crises, opioid administration for pain management vs. respiratory depression, and conflicts regarding informed consent. Nurses reported emotional and professional impacts from these dilemmas, contributing to moral distress, burnout, and ethical fatigue. Nurses emphasized the importance of interdisciplinary collaboration and structured decision-making frameworks to navigate these challenges. However, the lack of consistent access to ethics consultations and peer support during critical moments was noted as a significant barrier

Conclusion:

Nurses encounter complex ethical dilemmas that impact their emotional well-being and job satisfaction. Effective decision-making requires applying ethical principles, adhering to guidelines, and consulting peers. The study reveals the need for improved support systems, including more frequent and comprehensive ethics training, better access to ethics consultations, and structured frameworks to guide decision-making in high-pressure situations

Keywords:

Ethical dilemma, Decision making, Emergency and critical care, Nursing

Abs. 7

7. Functional Impairment and Associated Factors among Adults with Upper Extremity Fractures at Comprehensive Specialized Hospitals in Gojjam Zones, Northwest Ethiopia: Ordinal Logistic Regression Analysis. *Abebe Dilie Afenigus*

Background:

Upper extremity fractures are common injuries that can lead to significant functional impairment, adversely affecting daily activities and quality of life. However, evidence on functional impairment and its factors is limited

Objective and Methodology:

To assess functional impairment and associated factors among adults with upper extremity fractures in Gojjam Zones, Northwest Ethiopia. A facility-based cross-sectional study was conducted involving 423 adults attending orthopedic follow-up for upper extremity fractures. Participants were selected through simple random sampling. Data collection involved structured interviewer-administered questionnaires and chart reviews using Kobo Collect. Functional impairment was measured using the Disabilities of Arm, Shoulder, and Hand (DASH) and the Upper Extremity Functional Index (UEFI-20) questionnaire. Data were analyzed with SPSS, and ordinal logistic regression identified factors associated with functional impairments.

Results:

Of 423 eligible participants, 402 participated in the study, yielding a 95% response rate. Functional impairment was categorized as severe (39.1%), moderate (23.9%), mild (18.2%), and minimal/no impairment (18.9%). Males had lower odds of severe functional impairment compared to females (AOR=0.48; 95% CI=0.2-0.8). Participants with non-traumatic fractures had lower odds of severe impairment risk compared to those with traumatic fractures (AOR=0.34; 95% CI=0.1-0.9). use of traditional or alternative fracture management methods was associated with twice higher odds of severe impairment compared to surgical fixation methods (AOR=2; 95% CI=1.5-8.6). Receiving physiotherapy was associated with 69% lower odds of severe impairment compared to their counterparts (AOR=0.31; 95% CI=0.2–0.5). Additionally, severe pain (AOR=2; 95% CI=1.5-3.3), fracture-related complications

(AOR=2; 95% CI=1.2-3.1), and open fractures (AOR=1.6; 95% CI=1.1-2.5) were associated with increased odds of severe impairment.

Conclusion:

Functional impairment after upper extremity fractures was significant and related to female sex, absence of physiotherapy, presence of complications, severe pain, open fractures, and traditional treatment.

Keywords:

Functional impairment, upper extremity fractures, associated factors, adults

Abs. 8

8. Maternal Fine Particulate Matter (PM_{2.5}) Exposure and Adverse Pregnancy Outcomes in Rural Butajira, Ethiopia: A Population-Based Prospective Cohort Study. *Sisay Shine Tegegnework*

Background:

Adverse pregnancy outcomes are a major public health concern in low-resource settings such as Ethiopia, caused by demographic, obstetric, psychological, and environmental factors, including air pollution. Despite extensive research on various determinants, limited evidence exists on maternal exposure to fine particulate matter. This study aimed to examine its association with adverse pregnancy outcomes.

Objective and Methodology:

A prospective cohort study was conducted among 325 pregnant women in rural butajira, Ethiopia 2025, with pregnancy and gestational age confirmed by ultrasound. Sociodemographic, maternal, and environmental data were collected through face-to-face interviews, and PM_{2.5} exposure was measured using the Atmotube Pro. Pregnancy outcomes were recorded within 72-hours after delivery at health facilities. Logistic regression assessed associations between PM_{2.5} exposure and outcomes, while Poisson model estimated relative risks. Adjusted relative risks with 95%CI were reported, and p<0.05 indicated statistical significance.

Results:

Overall incidence of adverse pregnancy outcome was 18.2%, including low birth weight (8.2%), preterm birth (8.7%), spontaneous abortion (1.23%), and stillbirth (0.62%). Maternal PM_{2.5} exposure was significantly associated with low birth weight and overall adverse pregnancy outcomes. Each interquartile range increase (27.0µg/m³) raised the risk of low birth weight by 1.20 times and overall adverse outcomes by 1.11 times. No significant association was observed with preterm birth.

Conclusion:

Maternal PM_{2.5} exposure was significantly associated with low birth weight and overall adverse pregnancy outcomes, but not with preterm birth. These findings underscore the need for public health interventions to reduce PM_{2.5} exposure among pregnant women, especially in rural areas where biomass fuel use is common.

Keywords:

Maternal exposure, low birth weight, preterm birth, spontaneous abortion, stillbirth, PM_{2.5}, prospective cohort, Ethiopia

Abs. 9**9. Quality of Antenatal Care Services: A Systematic Review and Meta-Analysis. *Leltework Wondmagegn*****Background:**

Antenatal care (ANC) is a health service provided to pregnant women in the continuum of maternity care. Even though progress has been made in increasing ANC coverage globally, the quality of care has not kept pace with access.

Objective and Methodology:

Objective: To synthesize present evidence on the methods used to measure the quality of ANC services and to provide a pooled estimate of the proportion of women who receive quality ANC service globally.

Method: We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses

(PRISMA) checklist to present this study. We searched PubMed, ScienceDirect, the Web of Science, CINAHL, the Cochrane Library, and Google Scholar for studies. Risk of bias was assessed using the Joanna Briggs Institute (JBI) critical appraisal tools and Begg's test for the presence of publication bias. A random-effects meta-analysis model was applied to estimate the pooled coverage of ANC service quality. Additionally, subgroup analyses were performed to examine variations in the proportion of women who receive quality ANC service across different study groups.

Results:

Eighty-eight studies were included in the analysis. A total of 89 unique indicators were identified from all the studies to assess the quality of ANC services. Measurement of blood pressure (77.3%), blood tests (76.1%), and urine tests (75%) were the most reported indicators. The pooled estimate of total quality ANC service coverage was 35% (95% CI: 31%–40%). There was heterogeneity in the pooled estimate by continent, studies from Africa shows lowest proportion of women's received quality of ANC service with (33.4% (95% CI: 28.1%- 38.7%)). Cohort studies had a significantly higher pooled coverage (51.8% (95% CI: 38.6%–64.9%)) than the cross-sectional studies (32.4% (95% CI: 27.5%–37.3%)). Facility-based studies reported a higher pooled coverage of 35.7% (95% CI: 28.6%–42.8%) compared to community-based studies, which had a pooled coverage of 32.5% (95% CI: 26.2%–38.8%).

Conclusion:

The majority of the included studies were focused on the process quality. Blood pressure measurements, blood samples taken and urine samples taken were used as indicators in most of the studies. More than two-thirds of pregnant women did not receive quality ANC service globally.

Keywords:

Antenatal care, Maternal care Meta-Analysis, Quality, Systematic review

Abs. 10

10. Improving ANC8 Contact Coverage at Afar Region Telalak Deroesi Health Center. *Rahel Degefa Gizaw*

Background:

Antenatal Care (ANC) 8 contact coverage is a key indicator for ensuring quality maternal health services and improving pregnancy outcomes. Completing at least eight ANC contacts enables early detection and management of pregnancy-related complications, promotes skilled birth attendance, and reduces maternal and neonatal morbidity and mortality According to the DHIS2 report, ANC 8 contact coverage at Deroesi Health Center over the last six months (Hidar–Miazia 2017 E.C.) was 0% This low performance leads contributing to delayed high-risk pregnancy detection and increased the risk of poor maternal and neonatal outcomes

Objective and Methodology:

Women HIL trainees at Deroesi Health Center conducted capstone project by beginning with a workplace climate assessment to understand service delivery performance gaps. Using a prioritization matrix, the team identified low ANC 8 coverage as the key issue requiring improvement. To understand the root causes of the low ANC 8, fishbone analysis was used and driver diagram was followed to select the interventions. Then, the proposed interventions were introduced and tested through Plan–Do–Study–Act (PDSA) cycles. AND Deroesi Health Center capstone project improvement team aims to improve ANC 8 coverage from 0% to 20% between Ginbot 2017 and Meskerem 2018 E.C

Results:

The average ANC 8 performance coverage increased from 0% to 33%. Effective collaboration between health center leadership, staff, and community volunteers enables the achievement of impactful outcomes.

Conclusion:

Conducting maternal conferences and providing on-job orientation to staff contributed to an increase in staff workload and client waiting time the implemented change ideas have proven effective and continue to show positive outcome

Keywords:

Improving ANC8 contact coverage, Afar region, zone5, Talalak woreda, Deroesi Health center

Abs. 11**11. Determinants of Late ANC Initiation among Pregnant Women in Rural Pastoralist Community of Gomole District, Borena zone, Southern Ethiopia. *Wagaye Alemu Zenebe*****Background:**

Late ANC initiation is the first ANC visit after 12 weeks of gestational age. Late initiation of ANC leads underutilization of the recommended eight or more ANC visits, home delivery, increased risk of newborns admission at Neonatal intensive care unit. Existing research on determinants of late ANC initiation have significant gaps in focusing on rural pastoralist community. The study aimed to address this gap by employing a community-based case control approach to identify determinants of late ANC initiation among pregnant women in Gomole district.

Objective and Methodology:

Objective: The aim of the study was to identify determinants of late ANC initiation among pregnant women in the rural pastoralist community of Gomole District, Borena zone, Southern Ethiopia, 2024. **Methods:** A community-based unmatched case-control study design was utilized. A total of 354 pregnant mothers (177 cases and 177 Controls) who initiated antenatal care were randomly selected by simple random sampling from four kebeles, Data were collected by face-to-face interview using a pretested structured questionnaire after training was given to data collectors and supervisors. Finally, the data was entered into Epi data version 3.1 and exported to SPSS version 25 for analysis. After bivariable analysis, candidate variables with a P-value <0.25 were included into multivariable logistic regression, and

ultimately, P-value <0.05 was considered statistically significant for each of the independent factors affecting the outcome variables.

Results:

Result: 354 pregnant women participated in the study (177 cases and 177 controls), yielding a 100% response rate overall. The mean age of the control group was 28.32(+5.37) years, while the mean age of the cases was 29(+5.55) years. The following variables were found to be significantly associated with the late ANC initiation: intimate partner violence (AOR =3.61, 95% CI 1.47, 8.82); previous ANC initiation before 12 weeks (AOR = 0.05 (95% CI 0.02, 0.13); planned pregnancy (AOR=0.23,95% CI 0.10, 0.52),travelling time to reach health facilities less <1hour (AOR:0.40, 95% CI, 0.17,0.93)and service waiting time< 1hour(AOR = 0.23 (95% CI 0.08, 0.71).

Conclusion:

The finding showed that facing intimate partner violence had a positive effect while previous ANC initiation before 12 weeks, planned pregnancy, travelling time less than one hour to reach health center and service waiting time less than one hour had a protective effect on odds of late ANC initiation.

Keywords:

late ANC initiation, rural Pastoralist, Gomole district

Abs. 12

12. Unequal Burden: Spatial Disparities and Determinants of Anemia among Pregnant Women in Sub-Saharan Africa (2018–2024) based on Bayesian Spatial Analysis. *Woldeteklehaymanot Kassahun Dagne*

Background:

Anemia in pregnancy remains a major public health concern in Sub-Saharan Africa (SSA), contributing significantly to maternal and neonatal morbidity and mortality. Despite the World Health Organization's goal to halve anemia prevalence among women of reproductive age by 2030, SSA countries continue to experience disproportionate burdens.

Objective and Methodology:

Objective: This study aimed to assess the prevalence, spatial distribution, and determinants of anemia among pregnant women in SSA using recent nationally representative data. **Methods:** This study utilized 11,480 pregnant women data from 19 Demographic and Health Surveys conducted between 2018 and 2024 across sub-Saharan Africa. All pregnant women aged 15–49 years with hemoglobin measurements were included. Spatial clustering was assessed using Moran's I and Getis-Ord G_i^* statistics to identify anemia hotspots and cold spots. A Bayesian spatial model was fitted using Integrated Nested Laplace Approximation (INLA) with the Stochastic Partial Differential Equation (SPDE) approach to account for spatial dependence and multilevel structure. Model performance was evaluated using the Deviance Information Criterion, Watanabe-Akaike Information Criterion, and Conditional Predictive Ordinates. Significance was declared at a 95% credible interval.

Results:

The weighted prevalence of anemia among pregnant women in SSA was 52.85% (95% CI: 51.38–54.32), indicating a severe public health problem. Mali had the highest prevalence (63.3%) and Rwanda the lowest (24.5%). Significant spatial clustering was observed after adjusting for covariates, with hotspots concentrated in West Africa and parts of Mozambique and Madagascar. Country-level random effects indicated higher risk of anemia in Benin, Mali, and Côte d'Ivoire, and lower risk in Cameroon, Rwanda, and Zambia. Maternal age (20–34 years), low educational attainment, and poor household wealth were associated with increased odds of anemia, while employment and higher wealth quantiles were protective.

Conclusion:

Anemia among pregnant women in SSA remains a severe and spatially heterogeneous problem driven by socioeconomic and contextual disparities. Integrated strategies focusing on education, women's economic empowerment, and improved healthcare access are urgently required. Targeted interventions should prioritize high-burden areas, particularly in West Africa, to accelerate progress toward the 2030 global nutrition targets.

Keywords:

Anemia, Pregnancy, Sub-Saharan Africa, Bayesian spatial model, INLA, SPDE, DHS.

Abs. 13

13. Determinants of Contraceptive and Sexual Empowerment among Pregnant and Postpartum Women in Ethiopia: A Partial Proportional Odds Model. *Tsegaye Lolaso Lenjebo*

Background:

Gender inequality deters women's decision-making autonomy and limits their ability to contribute to economic development and social progress. Globally, only half of all women aged 15-49 years decide on their own reproductive matters; this proportion is even lower in sub-Saharan Africa. However, little is known about contraceptive and sexual empowerment in these contexts. This study aimed to assess the determinants of contraceptive and sexual empowerment in Ethiopia.

Objective and Methodology:

We analyzed data from the Performance Monitoring for Action Ethiopia panel study (2021-2023), which included 430 postpartum and 1381 pregnant women aged 15-49 in four big regions of Ethiopia. Contraceptive empowerment was measured by 5 items rated on a 5-point Likert scale, and sexual empowerment was measured by 8 items rated on a 5-point Likert scale. We computed composite variables for both contraceptive and sexual empowerment and created a tertile variable as low, medium and high. A partial proportional odds model was applied, controlling for enumeration area as a cluster. Effect sizes were presented using adjusted odds ratio (AOR) with 95% confidence interval (CI).

Results:

After controlling for potential confounders, prior use of contraception (AOR: 2.1, 95% CI: 1.6-2.6) was linked to high contraceptive empowerment. Lower sexual empowerment was linked to no formal (AOR: 0.5, 95% CI: 0.3-0.7) or primary education (AOR: 0.6, 95% CI: 0.4-0.7), intimate partner violence (AOR: 0.3, 95% CI: 0.2-0.5), low contraceptive empowerment (AOR: 0.6, 95% CI: 0.4-0.9), lower wealth status (lowest: AOR: 0.2, 95% CI: 0.1-0.6; lower: AOR: 0.3, 95% CI: 0.1-0.6; middle: AOR: 0.3, 95% CI: 0.1-0.5; higher: AOR: 0.4, 95% CI: 0.3-0.6), and residence in Amhara (AOR: 0.5, 95% CI: 0.2-0.9), Oromia (AOR: 0.4, 95% CI: 0.2-0.9), or SNNP (AOR: 0.2, 95% CI: 0.1-0.4) regions. Women with secondary education or higher and those in Addis Ababa showed significantly greater sexual empowerment.

Conclusion:

Prior contraceptive use predicts higher contraceptive empowerment, while sexual empowerment is linked to intimate partner violence, low education, regional and socioeconomic inequalities. These findings underscore the need for targeted interventions that address gender-based violence, expand access to and completion of secondary education, and reduce economic and geographic disparities to advance contraceptive and sexual empowerment.

Keywords:

Sexual empowerment, Contraceptive empowerment, determinants, and Ethiopia

Abs. 14**14. Closing the Equity Gap: A Controlled Evaluation of Task-Shifting Life-Saving MNH Interventions to Village Health Leaders in Ethiopia. *Biruk Bogale Wolde*****Background:**

Women in remote agrarian and pastoralist regions of Ethiopia continue to face major barriers to timely and quality maternal and newborn health (MNH) services, resulting in preventable mortality linked to home births. This study evaluated the feasibility, safety, and clinical effectiveness of Village Health Leaders (VHLs) delivering a continuum of care package - including postpartum hemorrhage (PPH) prevention, chlorhexidine cord care, iron-folic acid (IFA) for anemia prevention, and Postpartum Family Planning (PPFP) counseling and services—to bridge the gap between communities and facilities

Objective and Methodology:

A controlled before-and-after household survey (n=4,026) was conducted at baseline (Aug–Sept 2023) and endline (June–Sept 2025). We utilized Propensity Score Matching (PSM) and Difference-in-Differences (DiD) modeling to estimate causal impact, adjusting for confounders including maternal age, education, household wealth, parity, religion, distance to the nearest facility, autonomy, and number of ANC contacts. Quantitative data were triangulated with a qualitative process evaluation (90 interviews, 14 FGDs) to assess implementation fidelity

Results:

VHLs reached approximately 60% of the expected pregnancies (n=4,050) with a high uptake of key MNH interventions. Among home births, more than 97% used misoprostol correctly and safely, and most applied chlorhexidine. DiD analysis demonstrated significant positive impacts: Institutional Delivery increased (Agrarian: DiD +15.1, OR 2.4, p<0.01; Pastoral: DiD +8.4, OR 1.8, p=0.027), and suspected PPH declined (DiD -4.4; OR 0.09, p<0.01). Delayed bathing practices improved dramatically (Agrarian: DiD +40.7, OR 7.7, p<0.01; Pastoral: DiD +37.1, OR 6.9, p<0.01), and PFP adoption improved significantly (DiD +26.7; OR 3.5, p<0.01) in agrarian areas. Contrary to substitution concerns, VHL engagement significantly increased facility referrals. Qualitative findings indicated strong community trust and acceptance due to VHLs' cultural familiarity, though challenges remained regarding supply shortages, lack of formal recognition, and weak referral feedback loops

Conclusion:

Task-shifting of critical MNH interventions to VHLs is safe, acceptable, and effective. Robust DiD evidence confirms that community-based delivery of RMNCH services strengthens the primary health care system by extending service reach, enhancing care continuity and integration, and reducing PPH morbidity. Given the high prevalence of home births (28%), formally recognizing and strengthening community cadres offers a scalable model. They act as “bridge builders”—rather than competitors to the formal system. Addressing contextual adaptations (agrarian vs. pastoralist) and supply security will likely offer Ministries of Health in Ethiopia and other resource-limited, hard-to-reach, and climate-vulnerable settings a feasible pathway to address equity gaps and achieve UHC and SDG targets

Abs. 15

15. Reorienting Family Planning for Sustainable Development and Demographic Resilience: A Macro-Level Assessment of Facilitators and Impediments to Fertility Transition in Ethiopia. *Tesfay Brhane Gebremariam*

Background:

Fertility transition is essential for health and development, yet Ethiopia continues to face high fertility and rapid population growth. While individual-level determinants are well studied, macro-level analysis

remains limited. This study assesses Ethiopia's readiness and implementation capacity for fertility transition, alongside structural and programmatic barriers.

Objective and Methodology:

Objectives: This study explores Ethiopia's political commitment, policy, and institutional readiness, and systemic factors influencing fertility transition, along with the challenges hindering progress. **Method:** A convergent parallel mixed-methods design was used, combining 14 key informant interviews with reviews of national policies and demographic data. Informants were purposively selected from federal, Regional States, and non-governmental institutions. Thematic and content analyses followed a pre-defined framework covering political commitment, legal and policy integration, institutional coordination, and implementation outcomes. NVivo 14 was used for coding, while policy texts and official speeches were systematically mapped and triangulated with fertility trends from national surveys and census data.

Results:

Over the past three decades, Ethiopia has recognized the burden of high fertility, adopted comprehensive policies, endorsed global agendas, and integrated fertility goals into national plans. Partnerships with development agencies have expanded contraceptive use and reduced period fertility rates. However, challenges persist, including limited domestic political advocacy, weak multisectoral coordination, low focus on birth limitation, and inequities in service access and quality. Structural barriers, pronatalist norms, political instability, economic stagnation, and rural dominance continue to slow fertility decline.

Conclusion:

Ethiopia's fertility transition remains slow due to fragmented implementation and limited political and programmatic emphasis on birth limitation. Accelerating transition requires integrating reproductive rights with development goals, reorienting family planning toward voluntary birth limitation, and ensuring equitable, high-quality, and resilient services.

Keywords:

Fertility Transition, Family Planning, birth limitation, Readiness, Ethiopia,

Abs. 16

16. The Unseen Danger: The Impact of Early Pregnancy Anemia on Pregnancy Outcome in Southwest Ethiopia: Evidence from a Prospective Cohort Study. *Abdi Geda*

Background:

Anemia during pregnancy affects mothers and the foetus seriously. It causes negative perinatal outcomes, including low birth weight, preterm births, stillbirth, foetal cognitive impairment, perinatal death, and others. It is among the major global public health problems.

Objective and Methodology:

Objective: This study assessed the impact of maternal anemia on pregnancy outcomes and its predictors among pregnant women receiving antenatal care at public in southwest Ethiopia during 2023/2024. **Methods:** A facility-based prospective cohort study was conducted among 492 study participants in the study area. First, preliminary screening was conducted using a portable hemoglobin spectrophotometer to identify anemic and non-anemic pregnant women. Then, study participants were selected from both exposed (anemic) and non-exposed (non-anemic) groups using the systematic random sampling technique. Data was collected using the Eppicolect5 application, cleaned, coded, and exported to SPSS for analysis. Univariable and multivariable modified Poisson regression analysis was done to identify predictors of adverse pregnancy outcome. Variables at a P-value of less than 0.05 were considered independent predictors of adverse pregnancy outcome

Results:

The incidence rate of adverse pregnancy outcome was 366 and 49 per 1000 pregnancies among exposed and non-exposed group. The commonest adverse pregnancy outcome was low birth weight, 38 (7.7%), followed by stillbirth, 29 (5.9%), neonatal death, 18 (3.7%), preterm, 13 (2.6%), and others, 0.4%, while the rest, 79.3%, were normal births. Having morbidity at time of conception [RRa = 2.7, 95% CI (1.4, 5.0); $p < 0.01$], planned pregnancy [RRa = 0.32; 95% CI (0.16, 0.65), $p < 0.01$], inter-pregnancy interval (less than 2 years) [RRa = 2.1; 95% CI (1.03, 4.2), $p < 0.01$], obstetric complications during [RRa = 2.7, 95% CI (1.3, 5.5), $p < 0.01$], and obstetric complications during delivery [RRa = 2.6, 95% CI (1.5, 5.9), $p < 0.01$] were independent predictors of adverse pregnancy outcome

Conclusion:

Conclusion and recommendations: The incidence of adverse pregnancy outcomes was higher among anemic pregnant women. Efforts to reduce adverse pregnancy outcomes should be strengthened by improving the quality of obstetric care, counselling on IFAS, and early detection and treatment of maternal anemia and other comorbidities.

Keywords:

Adverse pregnancy outcome, stillbirth, low birth weight, preterm birth, neonatal death

Digital Health

Abs. 17

17. AI and Digital Health for Resilient and Equitable Care: Bridging Data Gaps in Maternal, Child, and Infectious Disease Services in Crisis-Affected Ethiopia. *Derbabaw Fentie Shiferaw*

Background:

Crisis-affected regions of Ethiopia, including Amhara, Tigray, Afar, and Oromia, face a deadly combination of high maternal and child mortality, frequent infectious disease outbreaks, and fragmented health data systems, worsened by conflict, climate stress, and population displacement. These systemic gaps hinder timely response, limit equitable access to services, and obstruct progress toward resilient and inclusive Universal Health Coverage (UHC). While artificial intelligence (AI) and digital health technologies offer the potential to integrate heterogeneous data, forecast risks, and support real-time decision-making, inequities in data representativeness, local utilization, and governance threaten equitable outcomes.

Objective and Methodology:

This study employed a mixed-methods design (June 2023–May 2024) to evaluate an integrated AI and digital health platform across nine crisis-affected woredas in Amhara, Tigray, Afar, and Oromia. The intervention included: (1) AI models (XGBoost) trained on satellite climate, ACLED conflict, and IOM DTM data to forecast health risks; and (2) co-designed digital tools (eMCH register, telemedicine hub)

developed via 42 workshops with frontline workers. Supporting qualitative insights were gathered from 28 stakeholder interviews and participatory case studies. To anchor this field research in a global evidence base, we conducted a systematic review of 78 studies and an audit of 112 health AI datasets to quantify data gaps and governance challenges.

Results:

The platform significantly improved predictive performance and service delivery. Models achieved 82–88% accuracy, with AUC-ROC of 0.85 for cholera incidence and 0.87 for high-risk pregnancies. Cholera outbreak detection time decreased by 67% (21 to 7 days), and fourth antenatal care (ANC4) coverage increased from 38% to 52%. Health worker efficiency improved, with manual data tasks reduced by 40% and confidence increasing by 35%, while telemedicine supported >3,500 remote consultations, despite connectivity issues affecting 25% of sites. Initiatives integrating at least two pillars of the Human-Centered Intelligent Systems framework—representative data curation, community co-design, and accountable governance—achieved 3.2× higher sustainability and 2.1× greater equity in service coverage, illustrated by maternal health platform and Ethiopia’s participatory disease surveillance system.

Conclusion:

Integrated, human-centered AI and digital health platforms can restore data-driven decision-making, strengthen health system resilience, and enhance equity in crisis-affected Ethiopian regions. To sustainably scale, policymakers should: (1) institutionalize participatory co-design, (2) invest in resilient, offline-first digital infrastructure, and (3) integrate digitally collected data into Ethiopia’s HMIS for real-time, equitable resource allocation. This approach provides a scalable, actionable framework for adaptive, equitable, and resilient health systems in fragile.

Keywords:

Artificial Intelligence; Digital Health; Health Equity; Health System Resilience; Maternal and Child Health.

Abs. 18

18. Leveraging Local Health Data and AI-Enabled Digital Systems to Strengthen Evidence-Based Decision-Making for Universal Health Coverage in Northern Ethiopia. *Tsigabu Atsbeha Kelelom*

Background:

Achieving Universal Health Coverage (UHC) in low-resource and post-conflict settings is often hindered by fragmented, paper-based health information systems and limited use of routine service data for decision-making. In Ethiopia, particularly in Northern regions, health facilities face challenges related to data quality, timeliness, and accessibility, which constrain effective planning and policy action. Emerging digital health technologies and context-appropriate artificial intelligence (AI) tools present an opportunity to transform locally generated health data into actionable evidence for improving primary health care delivery.

Objective and Methodology:

This study aimed to assess how locally generated health facility data, integrated into a digital health information system with basic AI-supported analytics, can enhance evidence-based decision-making to support progress toward Universal Health Coverage. A case study design was employed in selected primary health care facilities in Northern Ethiopia. Routine service data were digitized and analyzed using rule-based analytics and simple AI-supported trend analysis to generate insights on service utilization, patient flow, and operational gaps. Dashboards and summary reports were produced to support facility-level and administrative decision-making, with ethical safeguards including data anonymization and responsible data use.

Results:

Implementation of the digital system improved data completeness, consistency, and timeliness compared to prior paper-based reporting. Health facility managers and administrators gained improved access to real-time service data, enabling identification of service bottlenecks, monitoring of key performance indicators, and prioritization of targeted interventions. The integration of AI-supported analytics enhanced

trend detection and supported proactive decision-making, contributing to more efficient service delivery and improved planning aligned with UHC objectives.

Conclusion:

Harnessing local health data through digital systems combined with context-appropriate AI tools can significantly strengthen evidence-based decision-making in resource-limited and post-conflict settings. This case study demonstrates the potential of scalable, ethical, and locally driven digital health innovations to support Universal Health Coverage in Ethiopia and similar contexts.

Keywords:

Universal Health Coverage, Digital Health, Artificial Intelligence, Local Health Data, Evidence-Based Decision-Making, Health Information Systems, Ethiopia

Abs. 19

19. Effectiveness of Tailored Daily SMS Reminders on Antiretroviral Therapy Adherence among Adolescents Living with HIV in Southern Ethiopia: A Randomized Controlled Trial. *Abayneh Tunje Tanga*

Background:

Adolescents living with HIV face persistent barriers to antiretroviral therapy (ART) adherence, including stigma, psychosocial stressors, treatment fatigue, and limited autonomy. These challenges contribute to lower adherence and viral suppression compared with adults, particularly in resource-constrained, high-prevalence settings such as sub-Saharan Africa. Despite widespread mobile phone access, evidence on effective, scalable digital adherence interventions tailored for adolescents remains limited. We hypothesized that daily SMS reminders would improve ART adherence among adolescents living with HIV in Southern Ethiopia.

Objective and Methodology:

We conducted a six-month, parallel-group, individual randomized controlled trial (1:1 allocation) among 306 adolescents living with HIV between July 2022 and February 2023 in 11 health facilities in Southern Ethiopia. Adolescents aged 10–19 years receiving ART were randomized to standard care plus daily

automated SMS reminders or standard care alone. The SMS messages were co-designed with adolescents, non-disclosing, and personalized in timing and language, delivered 15 minutes before scheduled dosing. Mobile phones were provided to participants in both arms to ensure equity. The primary outcome was ART adherence measured using a validated 4-item self-report tool (categorized as high, moderate, or low), triangulated with pill counts and viral load measurement, and assessed at baseline, 3 months, and 6 months. Intention-to-treat analysis was performed using generalized estimating equations. Outcome assessors and data analysts were blinded. Ethical approval was obtained from relevant institutional review boards.

Results:

Participants had a mean age of 15.0 years, and 43.8% were female. Baseline characteristics were comparable across study arms, and overall retention at six months was 99.0%, with no deaths or adverse events reported. The intervention significantly increased the odds of high ART adherence over time compared with standard care (time-by-arm interaction OR 1.34, $p=0.015$). At six months, 75.0% of adolescents in the intervention arm achieved high adherence versus 51.0% in the control arm (adjusted OR 3.1, 95% CI 1.9–5.0; $p<0.001$), with consistent effects across age and sex groups. Peer support was also independently associated with higher adherence (OR 1.35, $p=0.029$). Viral suppression improved substantially in the intervention arm, with high viral load decreasing from 38.6% to 10.5%, compared with a reduction from 44.4% to 14.6% in the control arm.

Conclusion:

Personalized daily SMS reminders significantly improved ART adherence and viral suppression among adolescents living with HIV in Southern Ethiopia. Integrating this low-cost, scalable digital intervention into routine adolescent HIV care is strongly recommended. Further research should assess long-term sustainability and impact to inform broader scale-up across similar settings in sub-Saharan Africa.

Keywords:

Mobile health; Adherence; “Text Messaging”; “Adolescents Living with HIV”; “Randomized Controlled Trial”; Ethiopia

Abs. 20

20. Unveiling the Role of DHIS2 in Enhancing Data Quality and Accessibility in Primary Healthcare Facilities: Evidence from Ethiopia. *Taddese Alemu Zerfu*

Background:

The implementation of DHIS2 in healthcare systems has transformed data management practices worldwide. However, its specific impact on data quality, availability, and performance in Primary Health Unit (PHU) facilities in Ethiopia remains underexplored.

Objective and Methodology:

We investigated the contribution of DHIS2 to enhancing data quality, availability, and performance within PHU facilities in Ethiopia. We employed qualitative methods, specifically Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs), to gather insights from stakeholders, including healthcare providers and administrators at PHCUs across Ethiopia. Convenience sampling was used for FGDs, while purposive sampling targeted key informants with relevant expertise. Data were systematically analysed thematically, identifying patterns and themes related to DHIS2's impact on data management within PHUs. This approach offered a comprehensive understanding of the system's effectiveness and the factors influencing its implementation, highlighting both successes and challenges in integrating DHIS2 into healthcare practices

Results:

Participants from various regions reported significant enhancements in the timeliness, completeness, accuracy, and accessibility of health data following the implementation of DHIS2. While some concerns were raised regarding variations in reporting intervals, the consensus indicated marked improvements in data management processes. DHIS2 standardized data collection methods, enabling healthcare providers to input and access data in real-time. This advancement fostered greater accountability and transparency within the healthcare system. Additionally, unexpected benefits arose, including increased digital literacy among staff, equipping them with necessary skills for effective data management, and the creation of job opportunities, particularly for youth. Ultimately, DHIS2 emerged as a pivotal tool for enhancing data quality and promoting health service equity across Ethiopia.

Conclusion:

DHIS2 has significantly improved data quality and accessibility in Ethiopia, enhancing healthcare management and accountability across facilities. Healthcare providers should continue to leverage its robust features and prioritize ongoing staff training to improve digital literacy and data management skills. Establishing consistent reporting practices and regular audits will further maintain data integrity and foster a culture of accountability within the healthcare system.

Keywords:

DHIS2; Health information systems; Data quality; Primary healthcare; Ethiopia

Abs. 21**21. The Impact of Ethiopia's Health Information Revolution on Quality of Maternity Care in Ethiopia: Propensity Score Matching Analysis. *Adane Kebede Tesega*****Background:**

The quality of antenatal, labor, delivery, and postnatal care services depends on evidence-based clinical and non-clinical practices. Ethiopia's Health Information Revolution (IR) aims to improve data quality, data-driven decision-making, and digital health infrastructure. Despite some improvements in these areas, the impact of health IR on patients and clients has not yet been studied.

Objective and Methodology:

This study aims to assess the effect of the IR implementation on the quality of maternity care: antenatal, labor and delivery, and postnatal care in two districts. A post-test-only non-equivalent groups study design was conducted in the Anchar district, IR-supported model district or the intervention district, and Odabultum district, non-IR-supported and non-model or the control district in Eastern Ethiopia. A total of 736 mothers with children aged six months or younger were included: 399 were allocated in the intervention group and 337 were included in the control group. We utilized a Propensity Score Matching (PSM) method to ensure a balance in covariates between the control and intervention groups. Parameters like mean, standardized mean difference, t-statistic, p-value, and propensity score distribution were used

to analyze the data. The net effect of the intervention was estimated using the average treatment effect on treated (ATT) and average treatment effect (ATE).

Results:

The mean scores for quality of maternity care were significantly higher in the intervention district compared to the control group: 73.66% (95% CI: 71.59, 75.73) vs. 46.10% (95% CI: 42.80, 49.41), $P < 0.000$ during pregnancy, 92.43% (95% CI: 90.49, 94.37) vs. 83.13% (95% CI: 79.73, 86.52), $P < 0.000$ during labor and delivery, and 92.24% (95% CI: 90.53, 93.95) vs. 64.90% (95% CI: 59.96, 69.84), $P < 0.000$ for immediate and postnatal care. After matching, the ATE and ATT on intervention significantly enhanced the quality of antenatal care (ANC) improved considerably by 29.36 (95%CI:25.24,33.49) and 30.20 percentage points (95%CI:25.45,34.95), respectively. For the quality of labor and delivery care, ATE increased by 9.04 (95%CI:4.86,13.22), and ATT increased by 8.34 (95%CI:3.52,13.17) percentage points. Similarly, the postnatal care quality increased by 27.22 percentage points (95%CI:21.67,32.78) among the matched population (ATE) and by 27.67 percentage points (95%CI:21.06,33.86) for those who received the intervention (ATT).

Conclusion:

Ethiopia's health Information revolution has contributed to enhancing the quality of maternity care, particularly antenatal care, labor and delivery, and postnatal care. These improvements have been observed across the general population and among those who directly received the intervention, showcasing its effectiveness and potential for broader implementation.

Keywords:

Antenatal care, delivery, postnatal care, quality, and information revolution

Abs. 22

22. Short mobile text reminders as cost-effective strategies for improving health-related adjusted quality of life in adolescents living with HIV in Ethiopia. *Abayneh Tunje Tanga*

Background:

Despite improved access to antiretroviral therapy, adolescents living with HIV (ALHIV) continued to face unique challenges that affect their health-related quality of life (HRQoL). Digital health innovations such as short message reminders offer great opportunities to address such challenges in settings with limited resources, but their impact on HRQoL among ALHIV is less studied. Our aim was to determine whether daily SMS reminders could enhance HRQoL, measured as quality-adjusted life years (QALYs), and if the intervention is cost-effective from a health system perspective.

Objective and Methodology:

A 6-month randomized controlled trial was conducted from July 2022 to February 2023 in six hospitals and five health centers providing adolescent HIV care in South Ethiopia. A total of 306 adolescents living with HIV were randomized 1:1 to receive SMS adherence support plus standard care or standard care alone. Health-related quality of life was assessed using the EQ-5D-3L at baseline, 3 months, and 6 months and converted to utility scores and QALYs using a regional value set. Costs were estimated from the health-system perspective and categorized as fixed and variable. Incremental cost-effectiveness ratios were calculated as cost per QALY gained. Ethical approval was obtained from Swedish, national Ethiopian, and institutional review boards.

Results:

ALHIV aged 10–19 years (n=306; mean age 15.8 years; 56% male) were randomized 1:1 to receive daily SMS reminders plus standard care (n=153) or standard care alone (n=153). At six months, the intervention group demonstrated higher HRQoL (mean utility 0.921 vs. 0.896) and QALYs (0.476 vs. 0.451; mean difference 0.025, 95% CI 0.012–0.036), with improvements primarily in anxiety/depression and pain/discomfort domains. Total incremental cost was \$26,000; ICER was \$1,037 per QALY gained (\$864 per QALY accounting for retention), well below Ethiopia's WHO-CHOICE threshold of \$3,636 per

QALY. Loss to follow-up was minimal (5 participants), and sensitivity analyses confirmed the robustness of findings.

Conclusion:

Daily SMS reminders improved HRQoL and are cost-effective, providing evidence for scalable, adolescent-centered interventions in resource-limited settings.

Keywords:

Adolescents, HIV, SMS, Cost-effectiveness, QALYs, EQ-5D-3L

Abs. 23

23. The Feasibility of Antenatal Exercise Using an Innovative Exergame Program during Pregnancy. *Gemechu Kumera Wirtu*

Background:

Physical activity during pregnancy offers significant health benefits, yet many pregnant women do not meet recommended physical activity guidelines. Exergames are an emerging technology that requires physical activity as part of gameplay, aiming to promote physical activity through a medium that is engaging and entertaining. The Nintendo Ring Fit is one such exergame that may provide an engaging and accessible way to promote regular physical activity during pregnancy. However, its feasibility for pregnant women have not been previously studied.

Objective and Methodology:

Objective: The study aimed to evaluate the feasibility, safety, and potential benefits of an exergaming programs tailored for pregnant women. Methods: A single-arm pre-post design was employed. Thirteen women participants were recruited via social media advertisements. The intervention consisted of prescribed exergaming sessions tailored for pregnancy using the Nintendo Switch console. Women participants were followed from 16 to 36 weeks of gestation/near birth. Physical activity levels were measured at baseline and mid-intervention using the Pregnancy Physical Activity Questionnaire (PPAQ). Adherence to the exergaming program was estimated using self-reported exercise diaries and game-play

data from the console. Pregnancy and birth outcomes were recorded as part of standard care and retrieved from each woman's pregnancy record.

Results:

There was a significant increase in physical activity levels, measured in metabolic equivalents, from baseline to the mid-intervention ($p=0.01$). There was a significant positive correlation between physical activity levels (Mets) and adherence to the exergaming programs ($r=0.83$, $p=0.02$). The mean adherence to the exercise program was $67.2 \pm 16.3\%$. No injuries or contraindications associated with exergaming program were reported.

Conclusion:

Conclusions: Exergame-based exercise could be a feasible and safe exercise option to support physical activity during pregnancy, potentially increasing their physical activity levels and adherence to exercise. These findings imply that exergames could provide a suitable option for pregnant women looking to incorporate exercise into their routine, particularly for those facing barriers to traditional forms of exercise. Further research with larger, diverse samples and co-designed implementation strategies is warranted to inform scalability and integration into antenatal care pathways.

Keywords:

Exergames, Nintendo Switch, Physical activity, Exercise, Pregnant women

Abs. 24

24. Machine Learning-Based Prediction of Blood Pressure Screening during Pregnancy in Ethiopia: Evidence from the Recent EDHS. *Ali Yimer Mohammed*

Background:

Early detection of elevated blood pressure (BP) through routine screening during antenatal care (ANC) is crucial for the prevention and management of pre-eclampsia and other related complications. Machine learning statistical methods adequately capture the nonlinear relationships among various determinants of blood pressure screening during pregnancy.

Objective and Methodology:

To predict blood pressure screening during pregnancy in Ethiopia using machine-learning methods. This was a cross-sectional study using nationally representative data from the most recent Ethiopian Demographic and Health Survey. The study population included women who attended ANC for their recent live birth surveyed across Ethiopia. Six supervised machine-learning algorithms; logistic regression, gradient boosting, random forest, decision tree, support vector machine and naive Bayes were used to model blood pressure screening during pregnancy. Model performance was assessed using classification accuracy and the area under the receiver operating characteristic curve (AUC). SHapley Additive exPlanations (SHAP) were used to interpret model outputs and determine the relative contribution of predictors.

Results:

Random forest using grid search achieved the highest predictive performance (accuracy, 83.81%; AUC, 0.859 %). region, place of residence, household wealth index, and educational attainment emerged as the most substantial negative contributors, with SHAP values of -0.06 , -0.042 , -0.029 , and -0.028 , respectively were associated with blood pressure screening during pregnancy. In contrast, variables such as receiving counseling during ANC ($+0.005$) and the total number of ANC visits ($+0.00$) showed slight positive increase in the likelihood of blood pressure screening.

Conclusion:

Random forest demonstrated strong predictive performance and interpretability, making it a valuable tool for modeling blood pressure screening in resource-limited settings.

Keywords:

Blood Pressure Screening, Machine-learning Models, Prediction, Pregnant Women, Ethiopia

Abs. 25

25. Willingness to Receive mHealth Services among Patients with Diabetes on Chronic Follow-up in Public Hospitals in Eastern Ethiopia: Multicenter Mixed Method Study. *Dawit Fufa*

Background:

Management of diabetes needs a long-term care strategy that includes support for adherence to a healthy lifestyle and treatment. Exploring the willingness of patients with diabetes to receive mHealth services is essential for designing efficient and effective services.

Objective and Methodology:

Objective: This study aims to determine patients with diabetes's willingness to receive mHealth services and associated factors, as well as to explore the barriers to receiving mHealth services. Methods: A sequential explanatory mixed-method study was conducted from September 1 to November 30, 2022, involving 365 diabetes patients from three public hospitals. Quantitative data were collected via standardized questionnaires, analyzed with Stata 17, and logistic regression identified factors influencing mHealth service willingness. The qualitative component included eight key informants and seven in-depth interviews, with data thematically analyzed using ATLAS.ti V. 7.5 after transcription and translation.

Results:

Overall, 77.3% had access to a mobile phone, and 74.5% of them were willing to receive mHealth services. Higher odds of willingness to receive mHealth services was reported among patients with age below 35 years [AOR = 4.11 (1.15–14.71)], attended formal education (AOR=2.63 (1.19–5.77)), without comorbidity [AOR = 3.6 (1.54–8.41)], <1hour travel to reach a health facility [AOR = 3.57 (1.03–12.36)], answering unknown calls [AOR = 2.3 (1.04-5.13)], and being satisfied with health care providers service [AOR = 2.44 (1.04-5.72)]. In the qualitative study, infrastructure, health facilities, socioeconomic factors, and patients' behavioral factors were major barriers to receiving mHealth services.

Conclusion:

In this study, the willingness to receive mHealth services among those who have access to mobile phones was found to be high. Additionally, the study highlighted the common barriers to receiving mHealth

services and their implementation that should be addressed by program planners before implementing the service.

Keywords:

Willingness, mHealth, Mobile phone, Diabetes, Mixed method study, Eastern Ethiopia

WASH, Climate Change, and Environmental Health

Abs. 26

26. Tracing the Water–Beef Safety Nexus: Assessing Water Quality's Role in Beef Contamination from Slaughterhouse to Plate, in Southwest Ethiopia. *Girma Mamo Zegene*

Background:

Water is central to hygiene in beef processing but can also serve as a major route for microbial contamination. In Southwest Ethiopia, where access to safe water is limited, the water–beef interface remains an underexplored contributor to foodborne disease. This study traced the water–beef safety nexus from slaughterhouse to consumption, assessing how water quality influences microbial contamination across the beef supply chain

Objective and Methodology:

This study aimed at to evaluate how water quality at different stages of the beef value chain influences microbial contamination of beef from slaughterhouse to final consumption in Southwest Ethiopia. A laboratory-based cross-sectional study was conducted from February to May 2024 in Mizan and Aman towns. A total of 349 samples were collected, including water (n=126), beef (n=159), carcass swabs (n=32), and colon matter (n=32). Water was sampled from rivers, hand-dug wells, and taps serving abattoirs and major beef retailers. Standard microbiological methods were used for isolation and enumeration of *E. coli*, *Salmonella*, *Shigella*, *Listeria*, and indicator coliforms. Data were analyzed using chi-square tests and multivariable linear regression at 95% confidence

Results:

River water showed the highest contamination, with 100% total coliform positivity and mean counts ≥ 4.1 \log_{10} CFU/100 mL. Hand-dug wells were also highly contaminated (56.1%), while tap water showed lower but still unsafe counts ($\geq 23\%$). Beef and carcass swabs exhibited widespread pathogen presence, notably *E. coli* (42.1%) and *Salmonella* spp. (29.2%). Sampling schedule—spicing vs. non-spicing of beef and carcass washing—significantly predicted total and fecal coliform loads ($\beta=0.33$, $p=0.015$; $\beta=0.46$, $p=0.003$). Sample type and location were inversely associated with contamination, indicating variable hygiene status across sites

Conclusion:

Water quality is a major driver of beef contamination along the slaughter-to-consumption continuum in Southwest Ethiopia. Severely contaminated river and well water, inadequate abattoir sanitation, and unsafe handling practices collectively elevate microbial risks. Strengthening water safety, improving abattoir infrastructure, and enforcing hygienic meat handling are essential to safeguard public health

Keywords:

Water quality, beef safety, coliforms, *E. coli*, *Salmonella*, slaughterhouse hygiene, Ethiopia

Abs. 27**27. Escalating Burden of Malaria in Pregnancy in the Amhara Region, Ethiopia: Spatiotemporal Patterns, Early-Warning Insights and Predictors (2018-2024). *Kassawmar Angaw Bogale*****Background:**

Malaria in pregnancy (MiP) remains a major contributor to maternal morbidity, adverse birth outcomes, and neonatal mortality in sub-Saharan Africa. Despite ongoing control efforts in Ethiopia, limited evidence exists on the spatiotemporal distribution of MiP and its predictors remains limited.

Objective and Methodology:

This study assessed the spatiotemporal pattern, clustering, and predictors of malaria in pregnancy in the Amhara region from 2018 to 2024. We analyzed routine health facility data on laboratory-confirmed MiP

cases, linked with antenatal care (ANC) coverage and district-level environmental covariates. Annual incidence trends were calculated, purely temporal and spatiotemporal clusters were detected using SaTScan, and predictors were identified through ARMAX (1,0,4) time-series modeling. Model fit was assessed using AIC, BIC, and residual diagnostics.

Results:

A total of 63,354 MiP cases were reported across the study period, with an overall mean incidence of 9.2 (SD = 3.38). A temporal escalation occurred from 2022 to 2024, when incidence increased nearly ten-fold compared to 2018. One significant temporal cluster (2022–2024) was identified (RR = 3.74; $p < 0.001$), accounting for a 70% excess burden. Spatiotemporal analysis revealed seven clusters (2018–2020) were localized, while later clusters expanded to cover North western and central Amhara, with pregnant women facing up to seven-fold higher risk. MiP incidence will remain elevated through 2025, with seasonal peaks. ARMAX results identified malaria transmission intensity, average temperature, and relative humidity as significant positive predictors, while soil moisture and elevation reduced MiP risk.

Conclusion:

MiP incidence in Amhara has escalated in recent years with spatiotemporal clustering. Climatic factors—including temperature, relative humidity, soil moisture and elevation—along with underlying transmission intensity were strongly associated with incidence trends with indicating a sustained risk of recurrent upsurges. These findings underscore the urgent need for climate-informed interventions, early-warning systems, and strengthened ANC-based prevention to curb the growing burden.

Keywords:

Malaria in pregnancy, spatiotemporal pattern, temporal clustering, ARMAX, predictors, Amhara, Ethiopia

Abs. 28

28. Fecal Carriage, Risk Factors and Antimicrobial Susceptibility Patterns of Salmonella from Lactating Cows and Contact Humans at the Dairy Farm Level in Mekelle and Southeast Zones of Tigrai, Northern Ethiopia. *Atsebaha Gebrekidan Kahsay*

Background:

Zoonotic pathogens are pathogens that can be transmitted from animals to humans, which seriously endangers public health when the interaction between animals and human populations is not properly managed. Antimicrobial resistance (AMR) affects all age groups in all regions, especially in low- and middle-income countries, and impacts human and animal health, food production, and the environment.

Objective and Methodology:

This study aimed to determine fecal carriage, antimicrobial susceptibility, and associated factors of Salmonella from lactating cows and humans in contact with dairy farms in Mekelle and Southeastern Zones of Tigrai, Ethiopia: cross-sectional study was conducted from January to June 2025. After we collected the risk factors using questionnaires, 199 cow feces and 199 human stools were collected from 199 dairy farms. Pre-enrichment, selective enrichment, selective media, and a series of biochemical tests were used to identify and isolate Salmonella. An antimicrobial susceptibility tests were performed using the disk diffusion method. Statistical Package for the Social Sciences version 23 was used to analyse the data and the p-value < 0.05 was considered as statistically significantly associated with Salmonella. The chi-square test was used to determine the strength of risk factors.

Results:

Salmonella was isolated from 1% (2/199) of contact human stools and 2% (4/199) of lactating cow feces. Salmonella isolates showed statistically significant associations with cleaning of cow feces using bare hands (X^2 : 4.44; p-value: 0.035), handling of cow feces (X^2 : 4.119; p-value: 0.042), and lack of regular cleaning of dairy farm barns (X^2 : 5.227; p-value: 0.022). All Salmonella isolates showed resistance to ampicillin. Both of the isolates from contact humans were susceptible to cefotaxime, ceftazidime, ceftriaxone, meropenem, and ciprofloxacin. Three isolates from the lactating cow and two isolates from the contact humans showed multidrug resistance.

Conclusion:

The prevalence of Salmonella among contact humans and lactating cows was low. Handling of cow feces with bare hands and lack of regular cleaning of barns were statistically associated with Salmonella, which may have a significant impact on the transmission of Salmonella in the dairy farms. Ampicillin was inefficient to all Salmonella isolates. The multidrug-resistant Salmonella reported was 75% in cows to 100% in humans.

Keywords:

Fecal Carriage, Antimicrobial Susceptibility Patterns, Salmonella, Lactating Cows, Contact Humans, Dairy Farms, Tigray, Ethiopia

Abs. 29**29. Respiratory Symptoms among Hospitality Industry Employees: A Systematic Review and Meta-Analysis. *Yimer Mamaye Belete*****Background:**

Indoor air pollution, particularly from cooking activities, poses a serious risk to respiratory health worldwide. Respiratory diseases are significantly exacerbated by the continued reliance on biomass fuel for cooking and heating in approximately 3 billion households globally, disproportionately impacting vulnerable populations in low- and middle-income countries. Despite the anticipated minimal change in biomass fuel use by 2030, its combustion contributes significantly to indoor and outdoor air pollution. The World Health Organization (WHO) estimates that household cooking fuels cause more than half a million preventable deaths annually. Women and children in the hospitality industry are disproportionately exposed to household indoor air pollution due to increased involvement in cooking.

Objective and Methodology:

A thorough database search was conducted using PubMed, ScienceDirect, Hinari, Semantic Scholar, and Google Scholar to identify all relevant eligible studies published up to 2024. Microsoft Excel 16 and STATA 17 software were used for data extraction and meta-analysis, respectively. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed. JBI's critical

appraisal technique assessed the risk of bias in the included studies. Heterogeneity was evaluated using the Galbraith plot and the I^2 statistic. The DerSimonian-Laird random-effects model was applied. Publication bias was assessed with funnel plots and Egger's regression test. A sensitivity analysis was conducted to determine the impact of individual studies on the overall estimate of respiratory symptoms.

Results:

This meta-analysis included 22 studies with a total of 6945 participants in the analysis. Among these studies, 15 reported overall respiratory symptoms. A meta-analysis of these 15 studies found a pooled prevalence of 53% (95% CI: 37-70%, $I^2 = 99.48\%$, $p < 0.001$) for respiratory symptoms among hospitality industry employees. Using a random-effects model, phlegm, cough, and chest tightness were the most common symptoms, each with a pooled prevalence of 25% (95% CI: 19-32, $I^2=97.23$), 24% (95% CI: 14-32, $I^2=98.17$), and 24% (95% CI: 4-41, $I^2 = 96.30$), respectively, followed by shortness of breath with a pooled prevalence of 21% (95% CI: 15-26).

Conclusion:

These findings reveal that the pooled prevalence of respiratory symptoms in the hospitality sector remains high, with phlegm, cough, chest tightness, and shortness of breath being the most common symptoms. These results underscore the need for improved ventilation systems and workplace designs to reduce exposure, raise awareness of respiratory hazards, promote employee wellness programs, and develop workplace health and safety protection programs.

Keywords:

Respiratory symptoms, Hospitality employees, Kitchen workers, systematic review, meta-analysis

Nutrition and Food Security

Abs. 30

30. Mapping Mixed Milk Feeding Practice and its Spatial Predictors among Children Aged 0-6 Months in Ethiopia: A Geographically Weighted Regression Analysis. *Abel Endawkie Tareke*

Background:

Globally, mothers are increasingly combining breastfeeding with formula milk, fresh animal milk, or powdered milk in different proportions in the world including Ethiopia. However, the spatial evidence of mixed milk feeding practice (MMFP) and its spatial predictors among mothers with 0-6 months of children is limited in Ethiopia.

Objective and Methodology:

Objective: This study aimed to map MMFP and its spatial predictors among mothers with children aged 0-6 months in Ethiopia. Method: A secondary data analysis was carried out using a weighted sample of 550 mothers with children aged 0-6 months. Spatial analysis techniques were employed to identify geographic hotspots and predictors of mixed milk feeding practices (MMFP) among mothers of children aged 0-6 months in Ethiopia. Statistical significance was determined at a p-value <0.05, and the geographic weighted regression coefficients were reported.

Results:

The spatial autocorrelation analysis, with a global Moran's I value of 0.41 and a p-value <0.001, revealed a significant clustering of MMFP in Ethiopia. Spatial hotspot analysis revealed clusters of MMFP in regions such as Addis Ababa, Dire Dawa, Amhara, Afar, Oromia, and Somali. Interpolated MMFP prevalence was observed to be high in Somalia, Afar, Addis Ababa, and Dire Dawa. Geographically weighted regression analysis indicated that higher maternal education, female-headed households, urban residence, community-level maternal literacy, wealthier households, multiple births, and child age (4-6 months) were associated with an increased likelihood of MMFP. In contrast, antenatal care (ANC) visits were associated with a reduced likelihood of MMFP with distinct geographically dependent relationships in specific regions of Ethiopia.

Conclusion:

The spatial hotspot revealed that MMFP clustered in Ethiopia specifically in urban areas of Somali, Addis Ababa, Afar, Amara, Diredawa, and Oromo regions. The geographically weighted regression analysis revealed that the educational status of mothers, female household heads, urban residents, community-level maternal literacy, rich households, multiple births, and children aged 4-6 months increases the likelihood of MMFP in Ethiopia. However, ANC visits reduce the likelihood of MMFP with distinct geographic dependent relationships in a specific region of Ethiopia. The study highlights the need to tailor region/space-specific intervention based on these geographically identified predictors in specific regions.

Keywords:

Mapping, mixed milk feeding practice, spatial predictor, Children aged 0-6 months, Ethiopia, geographically weighted regression

Abs. 31**31. Nutritional Benefits and Potential Health Risks of Moringa Stenopetala Consumption: A Scoping Review. *Tesfaye Dagne*****Background:**

Moringa stenopetala (*M. stenopetala*) is one of the thirteen species of the moringa family, which is being consumed for its nutritional value by humans. However, the use of *M. stenopetala* for nutritional purposes has not been well studied. So, this review aims to examine the available literature on the benefits and risks of the plant for human consumption.

Objective and Methodology:

A scoping review method adapted from Levac and colleagues' recommendations for the framework, which has six stages, as well as the methodological framework of Arksey & O'Malley, was utilized. Systematic search strategies were applied from databases like Cochrane Library, PubMed, PubAg, Epistemonikos, and Google Scholar. Screening and appraisal were conducted by two groups of reviewers independently.

Results:

Fifteen studies were finally included in the review. But, only a few studies (three studies) were conducted among human beings. The study design employed was a cross-sectional one. The majority of the studies were conducted among experimental animals employing a stronger study design, including randomized controlled trials. Most of the studies reported the impact of *M. stenopetala* on different body organs, weight gain, and body functions, and its impact on biochemical parameters. The impact of *M. stenopetala* on pregnancy and pregnancy outcome was also studied among experimental animals. Consuming *M. stenopetala* was associated with improvement in weight gain and food intake. In contrast, it was found to reduce daily food intake and weight gain among pregnant rats. It was also reported that there was a decrease in the number of implantation sites, the number of fetuses, and the number of live fetuses, among rats that consumed *M. stenopetala*-based food, although not significant. Significant impacts on the kidneys, pancreas, and liver were observed. Significant reduction in glucose and urine was observed in rats relying on *M. stenopetala* for food. *M. stenopetala* is associated with an increase in thyroid-stimulating hormone (TSH), which allows the communities consuming *M. stenopetala*-based products to have a higher prevalence of goiter.

Conclusion:

Studies conducted on the nutritional benefits and risks of *M. stenopetala* among humans were almost none. So, studies involving human participants should be intensified, involving longitudinal cohort studies and randomized controlled trials to fill the gap in the literature and inform decision-making with stronger evidence.

Keywords:

Health benefits, Ethiopia, Moringa, *Moringa stenopetala*, Food safety, medicinal plant

Abs. 32

32. Impact of an Educational Intervention on the Feeding Practices and Nutritional Status of Children Aged 6-23 Months during and after Common Childhood Illnesses: A Clustered Randomized Controlled Trial. *Mastewal Erango Ersado*

Background:

The first two years of life are critical for meeting children's nutritional needs. Lack of proper nutrition and exposure to illness and infection during these early years can have lifelong consequences.

Objective and Methodology:

This study aimed to evaluate the impact of an educational intervention on the feeding practices and nutritional status of infants and young children (IYC) aged 6-23 months during and after common childhood illnesses. A cluster randomized controlled trial was implemented between July 2021 and March 2022, using a 1:2 allocation ratio of intervention to control groups. IYC experienced common childhood illnesses before the intervention commenced. The data were collected using a pre-tested semi-structured questionnaire, weight and height measurements. Nutrition Education (NE) session was conducted weekly for one month, lasting 60 minutes each. The primary outcome was feeding practice and the secondary outcome was the nutritional status of IYC. Difference-in-difference (DID) was employed to assess the impact of the intervention.

Results:

Data were completed from 238 mother-child pairs in seven intervention health centers (HCs) and 562 mother-child pairs from 14 HCs. The net effect of NE on the feeding practice was 10.82% (DID = 10.82%; 95% CI: 1.39-22.25; P=0.02). The NE has significantly improved the prevalence of wasting, a non-significant, but small positive effect on underweight among children in the intervention group.

Conclusion:

Nutrition education proves to be effective in enhancing the feeding practices and wasting status of IYC during and after common childhood illnesses. These findings underscore the importance of implementing NE to improve feeding practices and nutritional status of this vulnerable population.

Keywords:

Nutrition education, feeding practice, nutritional status, during and after common childhood illnesses

Abs. 33**33. Modeling Determinants of Women's Decision-Making Autonomy on Agriculture and Household Matters in Rural Ethiopia: A Mixed-Effects Beta Regression Tree Analysis. *Teshome Kabeta*****Background:**

Despite existing research on WDMA, there remains a significant gap in understanding the complex factors influencing women's autonomy, particularly in the context of rural Ethiopian households. Despite existing research on WDMA, there remains a significant gap in understanding the complex factors influencing women's autonomy, particularly in the context of rural Ethiopian households.

Objective and Methodology:

This study investigated the determinants of women's decision-making autonomy (WDMA) in agricultural household matters in rural Ethiopia, applying a mixed effects beta regression tree model (BRTM) to identify segment specific determinants of WDMA in rural households of Ethiopia.

Results:

Among the married women from male-led households, the age of the women ($\beta = .0034$, $p = .0237$), perception of women towards cultural norms on gender difference (PWCNGD) ($\beta = .0391$, $p = .0000$), followers of Orthodox Christianity compared to Muslim ($\beta = -.1867$, $p = .0000$), the richest households compared to the poorest ($\beta = -.1540$, $p = .0011$) and participation in the social groups compared to the nonparticipant ($\beta = .1180$, $p = .0052$) were significantly associated with WDMA. For women not in marriage and who were from male-led households, the age of the women ($\beta = -.0112$, $p = .0107$), PWCNGD ($\beta = .1173$, $p = .0008$), and the household wealth quintiles: the poor, middle, rich, and richest households compared to the poorest ($\beta = -1.5786$, $p = .0000$), ($\beta = -1.0277$, $p = .0027$), ($\beta = -1.3538$, $p = .0001$), ($\beta = -1.0596$, $p = .0012$) were significantly associated with WDMA respectively. Among women

in female-led segments, only the age of the women and Orthodox Christianity compared to Muslim ($\beta = -.0136, p = .0183$) and ($\beta = .3916, p = .0170$) were respectively significant.

Conclusion:

The current study sought to identify the determinants of WDMA utilizing a mixed-effects beta regression tree model yielding three distinct and homogeneous household segments from the total heterogeneous households: male-led households with married women, male-led households with single/divorced/widowed women, and female-led households. Contrary to expectations, wealthier households did not improve WDMA, with women from poorer households exhibiting greater autonomy compared to those in higher wealth quintiles. Cultural perceptions of gender norms significantly predicted WDMA in male-led households, regardless of marital status, while women's age had opposite impacts: positively associated with WDMA for married women in male-led households but negatively for unmarried, divorced, or widowed women and those in female-led households. Religion also played a role, with Orthodox Christian women showing lower WDMA in male-led households when married but higher in female-led households compared to Muslim women, though it was insignificant for unmarried, divorced, and widowed women in male-led households. Participation in local social groups positively influenced WDMA for married women in male-led households, while the years of education of women and their partners were insignificant due to the generally low educational attainment of the study participants. Based on the findings, it is recommended that interventions aimed at increasing women's decision-making autonomy should consider (i) the role of age, (ii) improving the perception of women towards social norms about gender equality through awareness creation activities of both women and their husbands in locally operating groups, (iii) the complex influence of religion, and possibly most importantly (iv) the masking effect of being wealthier economic status on women's decision making in which male-dominated decision-making and hence not a guarantee to have greater decision-making autonomy for women in rural Ethiopia.

Keywords:

Women's decision making, beta regression tree, agriculture, mixed effects, beta regression

Abs. 34

34. Dynamic Copula Bayesian Network Predictive Model for Assessing the Impact of Initiative Programs on Child Undernutrition in Ethiopia, 2009–2016. *Getnet Bogale Begashaw*

Background:

Child undernutrition remains a major public health concern in Ethiopia, influenced by multiple and interacting household and community factors. Despite large-scale initiatives such as the Productive Safety Net Program, Emergency Aid Program, and Health Extension Program, evidence is still needed on how these interventions affect the determinants of child nutritional status over time.

Objective and Methodology:

We applied a Dynamic Copula Bayesian Network (DCBN) to model time-varying associations between program participation and key determinants of child undernutrition: food security (FS), household wealth (WQ), and mother subjective well-being (MSW). Data were drawn from the Young Lives–Ethiopia surveys (waves 2009, 2013, 2016) with baseline information from 2002 and 2006. The DCBN framework incorporated 26 copula families, Kendall’s τ for dependence measures, and Markov Chain Monte Carlo (MCMC) for parameter estimation. Model performance was evaluated using root mean square error (RMSE) and Nash–Sutcliffe efficiency (NSE). We further accounted for program spillovers through a community program intensity proxy and assessed robustness with baseline conditioning and inverse probability weighting (IPW).

Results:

Program participation was positively associated with household food security and wealth. Both FS \rightarrow CUS and WQ \rightarrow CUS edges showed negative and strengthening dependencies across waves, indicating that improvements in food security and wealth are associated with reductions in child undernutrition. These associations were robust to baseline conditioning, spillover adjustments, IPW weighting, and estimation method (MCMC vs. local optimization).

Conclusion:

The study demonstrates the utility of DCBNs for mapping dynamic, nonlinear associations between social protection and health programs and child undernutrition determinants. The results highlight that strengthening household food security and wealth plays a central role in reducing child undernutrition. Although findings are associational, the transferable dependence map can be re-estimated with contemporary data to guide program targeting, monitoring, and policy decisions in Ethiopia.

Keywords:

Copula-based Models Dependency analysis Dynamic Bayesian network Initiative programs Markov Chain Monte Carlo

Abs. 35

35. Bridging the Gap: A Data-Driven Strategy for Integrating Nutrition into Health Workforce Education to Advance Universal Health Coverage (UHC). *Derbabaw Fentie Shiferaw*

Background:

Nutrition is a cornerstone of Universal Health Coverage (UHC) yet remains under-prioritized in health professional education, particularly in low- and middle-income countries. This gap limits the workforce's ability to use data and tools to combat malnutrition. Therefore, this systematic review examines how embedding structured nutrition content into public health and nursing curricula can strengthen professional competency and improve health outcomes. The aim is to provide an evidence-based strategy for building a transformative, equitable health workforce aligned with UHC goals.

Objective and Methodology:

Objective: This systematic review aimed to synthesize global evidence to: (1) assess baseline nutrition knowledge among nursing and public health students; (2) evaluate the effectiveness of educational interventions; and (3) identify barriers to curriculum integration. Methods: We systematically reviewed studies (2000–2025) from PubMed, Scopus, CINAHL, and Web of Science. From over 1,200 records, 47 studies were included. Data on knowledge scores and intervention outcomes were extracted and analyzed. A random-effects meta-analysis was performed using the metafor package in R to pool effect sizes.

Results:

The findings reveal a significant knowledge gap: one study showed nursing students scored an average of 56.6 ± 6.8 on nutrition knowledge at baseline, with only 50.5% achieving a “good” level, while another meta-analysis found a mere 3.6% scored “good” on general nutrition knowledge. Intervention studies demonstrate these deficits are addressable, with targeted nutrition modules increasing knowledge scores by approximately 25–35% and applied competency by 20–30%. Critically, this educational investment translates to improved community health; a quasi-experimental study in Ethiopia reported that an intervention raised maternal knowledge of IFA supplementation by 15.2 percentage points (versus 4.7 in controls) and improved compliance by 34.8 percentage points. These results provide robust, data-driven evidence for curriculum reform. Persistent challenges include limited faculty expertise, minimal curriculum time, and the absence of standardized competency frameworks.

Conclusion:

We conclude that embedding structured nutrition education, along with training on the use of relevant local data and emerging technologies, into the core curricula for public health and nursing is an essential strategy. This approach is fundamental for building a competent and adaptable health workforce. To realize this, we recommend the adoption of standardized competency frameworks, dedicated investment in faculty capacity and digital pedagogical resources, and the creation of systems to monitor competency acquisition. This integrated strategy equips frontline professionals to effectively counter malnutrition through evidence-based practice, promote health equity, and drive transformative progress toward Universal Health Coverage

Keywords:

Nutrition; Nursing Education; Public Health; Curriculum Integration; Competency; Universal Health Coverage; Data-Driven Decisions

Abs. 36

36. Estimating Childhood Tuberculosis Incidence and Under-Reporting in Gedeo Zone, Ethiopia: A Bayesian Hidden Markov Model. *Solomon Hailemariam Tesfaye*

Background:

Childhood tuberculosis (TB) remains substantially underdiagnosed and under-reported. In 2022, of the 7.5 million newly diagnosed TB cases globally, 1.25 million occurred in children. Accurately estimating the true burden of childhood TB is challenging due to diagnostic difficulties and persistent gaps in reporting systems, despite improvements following the 2017 WHO TB-burden estimation updates. Existing incidence estimates adjust for under diagnosis and under-reporting but rarely account for spatial variation in TB detection. Evidence from Ethiopia and other settings shows clear spatial and spatio-temporal clustering of TB notifications, underscoring the importance of geographic factors in understanding disease burden. While earlier studies in Ethiopia have applied Bayesian methods to TB across all age groups, the unique challenges of diagnosing TB in children necessitate a childhood-specific analysis.

Objective and Methodology:

To estimate childhood TB incidence and quantify under-reporting in the Gedeo Zone, Ethiopia, using a Bayesian hidden Markov model (HMM), providing improved evidence to guide TB control efforts and support progress toward END TB targets. We applied a Bayesian hidden Markov model with spatio-temporal random effects to childhood TB notification data from rural areas of the Gedeo Zone (2018–2023). Spatial dependence and HIV prevalence were included as covariates in the estimation of TB incidence, while the availability of diagnostic services informed the case-detection model. Sensitivity analyses using alternative prior distributions were conducted to assess the robustness of the results.

Results:

Childhood TB incidence in the Gedeo Zone increased from 141 per 100,000 population (95% UI: 96–193) in 2018 to 157 per 100,000 (95% UI: 114–207) in 2023. Estimated case detection rates ranged from 56

per 100,000 in 2018 to 62 per 100,000 in 2023, indicating substantial under-reporting. Spatial lag effects showed that TB notifications in neighbouring areas significantly predicted local incidence. Sensitivity analyses confirmed the robustness of the estimates.

Conclusion:

The persistent gap between estimated incidence and reported cases highlights the urgent need to strengthen childhood TB surveillance and detection systems in the Gedeo Zone. Importantly, by using locally collected TB data, our analysis generated context-specific estimates that reflect the true epidemiological patterns of the area. These locally grounded insights provide more reliable evidence for planning targeted interventions, prioritising resources, and improving diagnostic capacity where it is most needed.

Keywords:

Bayesian, Hidden Markov model, Incidence, Tuberculosis, Childhood

Abs. 37

37. Cross-Sectoral Surveillance of ESBL-Producing *Escherichia coli* and *Salmonella* spp. in Humans, Animals, Vegetables, and the Environment in Ethiopia: A One Health Study. *Shemse Sebre Muktar*

Background:

Antimicrobial resistance (AMR) poses a growing threat to human, animal, and environmental health globally, causing substantial morbidity and mortality. In Ethiopia, AMR is driven by widespread misuse of antibiotics, limited regulation, and inadequate waste management. Recent national efforts, including the Fourth National Action Plan for AMR (2026–2030) and digital surveillance platforms, reflect increasing commitment to a One Health approach. *Escherichia coli* and *Salmonella* spp. are key indicators for monitoring AMR due to their circulation across humans, animals, and the environment.

Objective and Methodology:

This study aimed to assess the prevalence and distribution of antimicrobial resistance, with a focus on ESBL-producing *Escherichia coli* and *Salmonella* spp., across human, animal, food, and environmental sources in Ethiopia using a One Health approach. A cross-sectional study was conducted from November

2024 to 2025, during which samples were collected from human clinical sources, cattle and chicken cecal contents, raw vegetables, and wastewater. Bacterial isolation and identification were performed using standard microbiological techniques, and antimicrobial susceptibility testing was carried out by the disk diffusion method in accordance with Clinical and Laboratory Standards Institute (CLSI) guidelines. ESBL production was determined using double-disk synergy and combination disk methods.

Results:

Among 846 samples, 659 *E. coli* isolates were recovered, of which 241 (36.7%) were ESBL-producers. Human clinical samples showed the highest ESBL prevalence (207/237; 87.3%), with *Salmonella* detected only in one sample. Cattle and chicken cecal contents (n = 402) yielded 378 *E. coli*, including 31 ESBL producers (8.2%) and 18 *Salmonella* (4.5%). Ten *E. coli*, one ESBL producer, and 18 *Salmonella* (37.5%) were isolated from wastewater samples. Vegetable samples (n = 159) yielded 34 *E. coli*, including 2 ESBL producers (5.9%) and 2 *Salmonella* (1.3%).

Conclusion:

This study demonstrates the cross-sectoral presence of multidrug-resistant and ESBL-producing *E. coli* and *Salmonella* spp. across humans, animals, food, and the environment in Ethiopia. These findings underscore the urgent need for integrated One Health AMR surveillance, stewardship programs, and coordinated multisectoral interventions.

Keywords:

Antimicrobial Resistance (AMR), Extended-Spectrum Beta-Lactamase (ESBL), One Health, Multidrug-Resistant Bacteria (MDR)

Abs. 38

38. Resurgence of Malaria in the Amhara Region, Ethiopia (2014–2024): Trends, Spatial Expansion, and Control Challenges. *Mastewal Worku Lake*

Background:

Background: Despite substantial control gains over the past 2 decades, malaria remains a major public health threat in Ethiopia. The Amhara Region has recently experienced a significant resurgence,

threatening to reverse previous progress. However, comprehensive analyses of this resurgence integrating long-term trends, parasite species dynamics, and spatiotemporal patterns are limited. Therefore, this study examines trends, spatial expansion, and control challenges associated with malaria resurgence in the Amhara Region.

Objective and Methodology:

Methods: A retrospective analysis of 11 years (January 2014–December 2024) of weekly malaria surveillance data from 166 districts in the Amhara Region, Ethiopia. Joinpoint regression was employed to detect significant temporal trend changes. A resurgence threshold was defined a priori as a $\geq 20\%$ increase in cases compared to the 3-year average baseline for the same period (Sep–Dec 2021–2023), based on an expert consensus survey. Auto-regressive integrated moving average modelling was used to characterize and forecast the test positivity rate (TPR). The GetisOrd G_i^* statistic was used to identify spatial clustering and detect transmission hotspots.

Results:

Results: During the study period, 7,710,733 malaria cases and 162 deaths were reported. Adults (≥ 15 years) contributed 62% of cases. A single trend inflection point occurred in late 2018, marking a shift from a significant decline (Annual Percent Change [APC]: -13.2%) to a sharp resurgence (APC: $+12.6\%$, 2018–2024). The Annual Parasite Incidence (API) rose from 10.9 (95% CI 10.8–11.0) per 1000 in 2018 to 74.8 (95% CI 74.72–74.93) per 1000 in 2024. *Plasmodium vivax* became increasingly prominent, with its contribution to the total case burden rising from 25 to 43% ($\chi^2=190,789.55$, $p50\%$ during peak months by 2024). In 2024, a resurgence occurred in 83% of districts; hotspots expanded into urban centres and previously low-transmission highland areas.

Conclusion:

Conclusion: The Amhara Region is experiencing a malaria resurgence characterized by intensified transmission, geographic expansion into urban and highland areas, and a significant shift toward *Plasmodium vivax* dominance. These findings exemplify an "elimination-resurgence paradox," where prior success increases vulnerability to threats such as invasive vectors, conflict, and climate shifts.

Keywords:

Keywords Malaria resurgence, Plasmodium vivax, Epidemiological transition, Spatial epidemiology, Transmission hotspots, Ethiopia, Elimination

Abs. 39**39. Pertussis Trends and Its Correlation with Vaccination Coverage in Eastern Africa, 1990–2021: Analysis of Global Burden of Disease 2021. Mengistie Kassahun Tariku****Background:**

Pertussis remains a major cause of infant mortality in low-income countries. Eastern Africa has seen widespread introduction of pertussis-containing vaccines, but there is limited evidence on pertussis burden trends and their correlation with vaccination coverage.

Objective and Methodology:

To assess pertussis burden trends and examine their association with pertussis-containing vaccination coverage in Eastern Africa from 1990 to 2021. The Global Burden of Disease Study 2021 was utilized to estimate the burden of diseases from August 10, 2025, to September 10, 2025. Disease modeling meta-regression 2.1, a Bayesian model, was used to estimate pertussis incidence, mortality, and disability-adjusted life years (DALYs). The Cause of Death Ensemble model estimated cause-specific mortality. The trends were assessed using joinpoint regression, and correlation was analyzed with Pearson's coefficient.

Results:

Age-standardized incidence, mortality, and DALY rates were reduced by 69.5% (95% UI: -78.3 to -58.5), 79.6% (95% UI: -92.5 to -35.1), and 79.6% (95% UI: -92.4 to -35.6), respectively, from 1990 to 2021. Annual percentage change (APC) was -3.7% (95% UI: -4.2 to -3.3) for age-standardized incidence, -5.1% (95% UI: -4.8 to -5.0) for mortality, and -4.9% (95% UI: -4.7 to -5.0) for DALYs. Heterogeneity at the country level ranges from a gradual fall in Djibouti (APC: -0.7%, 95% UI: -1.3 to -0.3) to a steep decline in Seychelles (APC: -11.3%, 95% UI: -12.7 to -10.4). Age-standardized death rate and pertussis-containing-1 vaccination coverage were strongly negatively correlated ($r = -0.77$, $p < 0.01$).

Conclusion:

Despite significant drops in burden over the previous three decades, pertussis is still a public health concern in Eastern Africa. The pertussis burden is strongly linked to pertussis-containing vaccine-1. To maintain control, regular vaccinations should be supported, and the health system should be strengthened to provide equitable protection.

Keywords:

Pertussis, Burden, Eastern Africa

Abs. 40

40. Trends of Acute Hepatitis B infection in Ethiopia from 1990 to 2021 and its Projection to 2031: Join Point Regression Analysis on GBD 2021 Study. *Taye Abuhay Zewale*

Background:

Background: Though fragmented studies have been conducted on acute hepatitis B virus (HBV) in different parts of Ethiopia, evidence based on comprehensive datasets is lacking.

Objective and Methodology:

Objective: This study was intended to provide a comprehensive analysis of HBV infection in Ethiopia from 1990 to 2021 and to project for the next decade. Methods: The study utilized GBD study 2021 data. Incidence, prevalence, disability-adjusted life-years (DALYs), and death rates were examined. The epidemiology of the disease was compared by sex, age group, region, and years. The join point regression and Autoregressive integrated moving average model were employed to show the trend and to forecast the disease burden.

Results:

Results: The burden of acute HBV significantly reduced from 1990 to 2021. The join point regression analysis showed that the ASPR and ASIR were declined in all segments. The rapid reduction were reported in ASIR (APC = -2.23 (95% CI: -2.42, -2.03)) and ASPR (APC = -2.24 (95% CI: -2.51, -1.97)) from 2016 to 2021. Moreover, the highest reduction in ASDR and ASMR was reported from 1999 to 2011 with APC

of -3.93 (95% CI: -4.06, -3.8) and -4.17 (95% CI: -4.31, -4.03), respectively. The highest reduction rate was observed in the Tigray. The disease burden is projected to decline after ten years.

Conclusion:

Conclusion and Recommendation: Ethiopia experienced a significant decrease in acute HBV infection from 1990 to 2021. ASIR and ASPR are expected to reduce significantly. However, new cases persist, highlighting the need for urgent intervention.

Keywords:

Hepatitis-B Infection, Incidence, Death, DALY's

Poster Presentations

Health Systems

Abs. 1

1. **Adaptation, Validation, and Development of an 8-Item Short Form of the HIV Stigma Scale among Adolescents and Young People Living with HIV. *Melkamu Merid Mengesha***

Background:

HIV-stigma instruments originally developed for use with adults might not give valid results when used in adolescents and young people living with HIV (AYLHIV). We adapted and tested the psychometric properties of the 12-item HIV stigma scale (HSS-12) including factor structure, discriminant validity, and measurement invariance among AYLHIV in southern Ethiopia.

Objective and Methodology:

A cross-sectional survey was conducted among AYLHIV aged 14 years to 22 years. Rigorous forward-backward translation with reconciliation, followed by cognitive debriefing, was conducted for content validation of the 12-item, four-subscale HSS-12. Exploratory factor analysis (EFA) was used to identify factor solution, and internal consistency was estimated from polychoric correlations. Confirmatory factor analysis (CFA) was used to examine factor structure, convergent validity, and discriminant validity. Metric and scalar invariances across sex and age were established. All analysis were conducted in R 4.5.0.

Results:

Alternative terms suggested in the cognitive debriefing interview were incorporated in the Amharic version administered. The HSS-12 had an acceptable internal consistency, but it had poor global fit indices (confirmatory fit index (CFI): 0.910; Tucker-Lewis index (TLI): 0.876; Standardised Root Mean Residual (SRMR): 0.090). The EFA four-factor solution, with 10 adequately loading indicators, was not confirmed in CFA. Two additional problematic items were dropped, resulting in final abridged three-factor HSS-08 short form. The HSS-08 had an acceptable internal consistency (McDonald's Omega= 0.79, 95%CI: 0.71-0.85) and acceptable global fit indices (CFI: 0.976; TLI: 0.958; and SRMR: 0.063). It also demonstrated convergent validity, discriminant validity, and measurement invariance across age and sex groups.

Conclusion:

The HIV-stigma scale originally developed for adults was not suitable for use without proper adaptation and psychometric validation. The abridged HSS-08 Amharic version demonstrated a clear factor structure, acceptable reliability and validity, and measurement invariance across age and sex, supporting its use to screen for HIV-related stigma among AYLHIV.

Keywords:

Abridged HIV stigma scale, adolescents and young people living with HIV, reliability and validity, factor analysis, and measurement invariance.

Abs. 2**2. A New Hepatitis Delta Virus Hotspot in Ethiopia: A Multicenter Study. Teklu Shiferaw Simbo****Background:**

Individuals with hepatitis B virus (HBV) and hepatitis D virus (HDV) co-infection are at a higher risk of liver disease progression compared to those with HBV mono-infection. Ethiopia is endemic for HBV; however, little is known about the HDV prevalence outside the capital city.

Objective and Methodology:

To investigate the HDV prevalence and associated factors among HBV-infected individuals in various regions of Ethiopia. A cross-sectional study was conducted among 5,383 adults with chronic HBV infection who were enrolled at HBV treatment centers in Adama, Jimma, Jigjiga, and Dubti from December 2021 to December 2023. Serum was tested for HDV antibodies using the ELISA method, and positive samples were additionally tested for HDV RNA using a quantitative PCR assay. HDV genotyping was determined by sequencing R0 region of the genome using the Sanger method. Mann-Whitney U tests were used to compare liver injury markers between groups.

Results:

The median age was 30 years (interquartile range (IQR) 25 - 38) and 50.7% (2,729/5,383) were male. The overall HDV seroprevalence was 6.8% (367/5,383) but with profound geographical variations: from 1.1%

(11/1,003) in Jigjiga (Somali region) to 18.7% (248/1,323) in Dubti (Afar region). Of the 367 anti-HDV positive samples tested (three samples had insufficient volume making total of 364), 53.8% (196/364) had detectable HDV RNA with a median viral load of 4.4 log₁₀IU/mL (IQR 3.1 - 5.3). All sequenced HDV strains were of genotype 1. HBV/HDV co-infected patients had higher median Alanine aminotransferase (ALT) (51 vs. 26 U/L, p<0.001), Aspartate aminotransferase (AST) (49 vs. 26 U/L, p<0.001), AST-to-platelet ratio index (0.55 vs. 0.28, p<0.001) and liver stiffness (8.1 vs. 5.2 kPa, p<0.001), alongside a lower median HBV DNA level (2.0 vs. 2.8 log₁₀IU/mL, p<0.001), compared to HBV mono-infected individuals.

Conclusion:

The overall prevalence of HDV in Ethiopia is intermediate, but the Afar region seems to be a hotspot for HDV transmission. Individuals co-infected with HBV/HDV had more advanced liver injury, with higher liver stiffness, elevated ALT, and lower HBV DNA levels compared to HBV mono-infected patients.

Keywords:

Hepatitis delta virus, Seroprevalence, Molecular epidemiology, Liver fibrosis, sub-Saharan Africa

Abs. 3

3. Challenges in Implementing the WHO-Recommended Package of Care for Advanced HIV Disease in Resource-Constrained Settings. *Temesgen Leka Lerango*

Background:

People with advanced HIV disease (AHD) should receive the WHO-recommended package of care for their specific needs. Although effective and feasible, its implementation remains suboptimal in many sub-Saharan African countries.

Objective and Methodology:

This study aimed to explore challenges in implementing the WHO package of care for AHD in resource-constrained settings. A sequential explanatory mixed-methods study was conducted between March 1 and April 30, 2024, in Southern Ethiopia. The quantitative data involved extraction from medical records of 145 individuals newly diagnosed with AHD. For the qualitative inquiry, healthcare providers engaged in

the HIV care continuum were purposively selected for in-depth key informant interviews. An inductive thematic analysis was conducted to identify and interpret recurrent patterns within the qualitative data. Quantitative and qualitative data were analyzed using R version 4.3.3 and NVivo 14, respectively.

Results:

Only about half (47.6%) of the newly diagnosed AHD patients underwent baseline CD4 count testing. All 145 individuals were screened for TB using the WHO four-symptom algorithm, and 78.6% underwent confirmatory GeneXpert® MTB/RIF testing. Among individuals with AHD, 92.4% received co-trimoxazole prophylaxis, and 14.5% received tuberculosis preventive therapy. Rapid ART initiation was implemented for 20.0% of individuals with AHD. All newly diagnosed individuals with AHD received tailored counseling to ensure optimal adherence. Qualitative data analysis identified three principal challenges in implementing WHO package of care: structural and organizational obstacles, service delivery constraints, and patient-related concerns as expressed by healthcare workers.

Conclusion:

The implementation of the WHO-recommended package of care for individuals with AHD remains inconsistent. Although TB screening and adherence support are routinely delivered to all individuals newly diagnosed with AHD, the implementation of other essential components is often impeded by various systemic challenges. These include the unavailability or frequent stockouts of essential medications and services for managing opportunistic infections, weak referral and linkage systems, system-imposed restrictions on drug exchange practices, and the absence of specialized clinics for managing patients with AHD. Such challenges underscore significant gaps in the continuum of AHD care and highlight the pressing need for targeted, system-level interventions to ensure comprehensive service delivery.

Keywords:

Challenges, implementation, WHO package of care, advanced HIV disease

Abs. 4

4. Health Information System in Primary Health Care Units of the Central Zone, Tigray, Northern Ethiopia. Mrs. *Letekirstos Gebereegziabher Gebretsadik*

Background:

Health information systems require the management of health information through health management information systems and research and knowledge management. In many low-income countries, including Ethiopia, poor data quality and limited use of health information remain major challenges in the health system. Reliable health data quality is essential for evidence-based decision-making and improving quality health service delivery.

Objective and Methodology:

Objective: This study aimed to assess and explore the contextual factors of the quality and utilization of health information in primary health care units in the Central Zone, Tigray, Northern Ethiopia. Methods: A facility-based cross-sectional quantitative and qualitative study design was used. A total of seven primary health care units and four district health offices were selected. Data were collected via document review, structured questionnaires and in-depth interviews. A three-month document review was conducted to assess data accuracy via lot quality assurance sampling. Forty-eight health professionals, including Woreda Health Office heads, facility heads, health management information system focal persons, service providers and health extension workers, were interviewed for quantitative analysis. Additionally, 23 key informants with the same roles participated in the qualitative interviews. Descriptive statistics were computed, and thematic analysis was conducted for the qualitative data.

Results:

Four of the seven primary health care units have assigned health management information system personnel, and five of them have necessary equipment for health management information systems. The average lot quality assurance sampling of the primary health care units ranged from 35% to 60%, which falls below the national threshold of 90% data accuracy. In knowing and measuring the dimensions of data quality, the informants described this as a difficult task despite acknowledging its importance. Similarly, the culture of data use for decision making was limited.

Conclusion:

This study revealed that primary health care units in the Central Zone of Tigray face significant challenges in terms of data quality and utilization, primarily due to the limited capacity of service providers, unclear understanding of data quality dimensions and weak data use culture. The average lot quality assurance sampling accuracy rates are below the acceptable level, indicating issues in the data documentation and validation processes. Addressing these gaps through targeted capacity-building, including the integration of HMIS curricula at the university level and system-level improvements such as implementing computerized systems, ensuring accountability and allocating budgets, is needed to strengthen health information systems and enable evidence-based decision-making at all levels of the health system.

Keywords:

Utilization, data quality, health information, decision making, primary health care unit

Abs. 5

5. Improved Community-Based Pediatric HIV Case Identification through Social Network–Assisted Index Testing (SN-AIT) in the Amhara Region, Ethiopia. *Anteneh Wohabie Tsega*

Background:

Pediatric HIV case identification is a major public health challenge in Ethiopia. In the country, only 52% of children under 15 living with HIV are aware of their status, and the Amhara region, which accounts for nearly one-third of the national HIV burden, reflects a similar gap. Delayed diagnosis contributes substantially to high morbidity and mortality, with evidence indicating that up to 80% of untreated children die before the age of five. This study aimed to assess the feasibility, acceptability, and programmatic outcomes of social network assisted index testing for improving pediatric HIV case identification.

Objective and Methodology:

A descriptive programmatic implementation study was conducted from September 1 to December 31, 2025, across 47 high–HIV-burden woredas and 53 community HIV service points in the Amhara region under the USG/PEPFAR–funded community project implemented by the Amhara Development Association. The study introduced a new Social Network–Assisted Index Testing (SN-AIT) initiative to

maximize pediatrics HIV case identification and compared its outcomes with the routine index testing approach. The study targeted children under 15 years born to HIV-positive caregivers who were at risk of HIV infection. Eligible HIV-positive “champion” mothers were recruited as initial seeds and provided with coupons to identify, recruit, and refer socially connected HIV-positive caregivers with at-risk children. All children meeting SN-AIT eligibility criteria and presenting during the study period received HIV testing in accordance with the national HIV testing algorithm followed by immediate linkage of tested positives for antiretroviral therapy. Program data on coupon distribution and return, pediatric HIV testing outcomes, HIV positivity yield, and linkage to care for both routine index testing and SN-AIT were collected through standard routine program monitoring tools. Data quality checks were conducted to ensure completeness and consistency, and descriptive statistical analyses using Excel and SPSS version 26 were performed to summarize testing uptake, HIV yield, linkage to lifesaving HIV care and treatment services, and HIV positivity rates between SN-AIT and routine index testing.

Results:

During the implementation period, a total of 14,541 index clients were reached and offered index testing services, of whom 14,514 (99.8%) accepted. From these index clients, 29,525 children under 15 years of age were elicited, of whom 4,249 were identified as being at risk through HIV risk assessment. Of these, 4,174 children were tested, 73 were diagnosed with HIV with yield of 1.7%, and 98.6% were successfully linked to care and initiated on antiretroviral therapy. Using the SN-AIT approach, 1,169 coupons were distributed to HIV-positive caregivers, with 98% returned within two weeks. This resulted in 491 at-risk children being identified, of whom 490 were tested and 32 were diagnosed with HIV positivity yield of 6.5%. Children recruited through SN-AIT were more likely to test HIV-positive compared to those recruited via routine index testing (AOR = 3.50; 95% CI: 2.12–5.76; $p < 0.001$).

Conclusion:

Both routine index testing and social network assisted index testing (SN-AIT) effectively identify children at risk of HIV and achieve high linkage to care. Notably, SN-AIT is more efficient, as children recruited through this approach were significantly more likely to test HIV-positive than those reached via routine index testing. These findings demonstrate that SN-AIT is feasible, acceptable, and can enhance pediatric HIV case-finding while maintaining strong linkage to lifesaving HIV care and treatment.

Keywords:

Child testing, Social Network Testing, Social Network Assisted index testing, community index testing.

Abs. 6**6. Are Primary Healthcare Facilities in Ethiopia Complying with Accessibility Standards?: An accessibility audit of health facilities in Bahir Dar City. *Desta Debalkie Atnafu*****Background:**

Accessible health facilities are a crucial component of disability-inclusive healthcare. Yet audits are rarely undertaken, particularly in Low- and Middle-Income Countries (LMICs).

Objective and Methodology:

This study evaluated the accessibility of Ethiopia's primary healthcare to determine its readiness for delivering disability-inclusive services and to propose actionable solutions that can guide national efforts in strengthening a more inclusive health system. A cross-sectional accessibility audit was conducted in all 10 public primary healthcare facilities in Bahir Dar, Ethiopia, using the Disability Awareness Checklist. We collected data through structured interviews, observation, and basic measurements across four dimensions: universal design, reasonable accommodation, staff capacity, and disability service linkages. We computed the median overall scores and compared them between urban and rural facilities using the Mann–Whitney U test and the Kruskal–Wallis test. Spearman's correlation examined relationships between accessibility, patient flow, and staffing. Facility staff also coproposed tailored action plans to address identified gaps.

Results:

The median overall facility accessibility score was 35% (range: 14 – 60%; maximum possible 100%), with urban facilities (42%) scoring higher than rural (18%). The highest scoring dimensions were reasonable accommodation (47%), followed by staff capacity (42%) and universal design (31%). The lowest was in linkages to disability-related services (8%). Differences in median accessibility scores were observed across facilities ($\chi^2 = 22.8$, $p \leq 0.01$) and core dimensions ($\chi^2 = 8.9$, $p < 0.05$). Accessibility was positively correlated with annual patient volume ($\rho = 0.84$, $p < 0.01$) and staff size ($\rho = 0.83$, $p < 0.01$). A

median of 30 recommendations were proposed, with 45% requiring “high” funding, although 22% were cost free.

Conclusion:

Accessibility standards for disability inclusion remain largely unmet across primary healthcare facilities in Ethiopia, with marked urban-rural disparities undermining equity and universal health coverage goals. Closing these gaps by strengthening health system through infrastructure, staff capacity, and referral linkages is critical to achieving healthcare equity and delivering inclusive, accessible, rights-based primary care services.

Abs. 7

7. Utilization and Associated Factors of the Community-Based Differentiated Service Delivery Model among ART Users in Dessie Public Health Facilities, Northeast Ethiopia. *Endalkachew Mesfin Gebeyehu*

Background:

Ethiopia has introduced community-based differentiated service delivery models (DSDMs) to improve accessibility, retention, and quality of HIV treatment services. Despite national scale-up, the uptake of DSDMs among antiretroviral therapy (ART) users remains inconsistent, and evidence on the determinants influencing participation in community-based models is limited in Northeast Ethiopia. Understanding these factors is essential for enhancing person-centered HIV care.

Objective and Methodology:

Objective: To assess the determinants of community-based differentiated service delivery model utilization among ART users in Northeast Ethiopia. Methods: A mixed-methods study was conducted from March to April 2025 in selected health facilities of Northeast Ethiopia. The quantitative component employed a facility-based cross-sectional design among ART users selected using systematic random sampling. Data were collected using a structured interviewer-administered questionnaire. Descriptive statistics summarized participant characteristics, while bivariable and multivariable logistic regression analyses identified determinants of DSDM utilization. The qualitative component involved key-informant

interviews with healthcare providers and ART case managers, analyzed through thematic analysis to supplement quantitative findings.

Results:

The utilization of community-based DSDM was 17.07%. Factors significantly associated with utilization included primary education (AOR = 2.61; 95% CI: 1.17–5.78), history of loss to follow-up (AOR = 0.26; 95% CI: 0.09–0.72), baseline CD4 count ≥ 500 cells/mm³ (AOR = 0.33; 95% CI: 0.13–0.85), and HIV status disclosure (AOR = 1.92; 95% CI: 1.43–4.97). Qualitative findings revealed barriers such as lack of information, misconceptions, cultural beliefs, and stigma

Conclusion:

Community-based DSDM utilization among stable ART users is low. Improving uptake requires enhancing health literacy, addressing stigma, supporting disclosure, and implementing culturally sensitive interventions. Scaling up these models is critical for improving ART outcomes and achieving epidemic control targets in resource-limited settings.

Keywords:

Community-based differentiated service delivery, Antiretroviral therapy, HIV/AIDS, Utilization, Ethiopia

Abs. 8

8. Implementation of Continuous Quality Improvement Projects at Public Hospitals in Eastern Ethiopia. *Dawit Fufa*

Background:

Implementing continuous quality improvement projects at health facilities is a key strategy to improve the quality of health services and to reduce preventable morbidity, mortality, and disability. Limited evidence on continuous quality improvement projects in this region prompted this investigation into implementation levels and influencing factors.

Objective and Methodology:

Objective: This study aimed to assess the implementation of continuous quality improvement projects and their related barriers at public hospitals in eastern Ethiopia. Methods: An institution-based cross-sectional study was conducted on 385 healthcare professionals at hospitals, supplemented with qualitative data. Data were collected using a self-administered questionnaire and key informant interviews by trained data collectors. Multivariable logistic regression was used to explore factors affecting continuous quality improvement projects at a 5% significance level. For the qualitative part, 12 key informant interviews were conducted, and data were thematically analyzed using NVivo 14 after verbatim transcription and translation.

Results:

Among the 366 respondents in this study, 204 (55.74%) reported that continuous quality improvement projects were implemented in their departments or hospitals. Poor leadership engagement in continuous quality improvement projects [AOR=0.51 (0.29, 0.91)], active (functional) quality improvement committees or teams [AOR=3.28 (1.32, 8.17)], having knowledge of quality improvement models by health workers [AOR=4.11 (1.52, 11.16)], and not having knowledge about their job descriptions [AOR=0.19 (0.05, 0.70)] were significantly associated with the implementation of continuous quality improvement projects. Organizational, technical, and individual-related factors were also major barriers to implementing continuous quality improvement projects.

Conclusion:

Over half of respondents reported continuous quality improvement projects implementation. Leadership engagement, knowledge of job description, functional quality improvement committees or teams, and knowledge of quality improvement models were predictors of the implementation of continuous quality improvement projects. Improving leadership engagement, strengthening quality teams, and enhancing staff problem-solving skills are recommended.

Keywords:

Continuous quality improvement, CQI, implementation, public hospitals, Ethiopia

Abs. 9

9. Urban Health Extension Workers in Prevention and Early Identification of Disability in the Case of Addis Ababa City, Analysis Related of Policy and Practice. *Asnakech Zewdie Degefe*

Background:

Introduction Disability prevention and early identification are globally recognized as core components of primary health care and universal health coverage. Many disabilities originate during early childhood due to preventable or manageable conditions such as perinatal complications, infections, malnutrition, injuries, and delayed developmental screening. Early identification and intervention significantly reduce long-term functional limitations and social exclusion. International frameworks, including the WHO Community-Based Rehabilitation Guidelines, the Global Disability Action Plan, and the UN Convention on the Rights of Persons with Disabilities, emphasize the integration of disability-related services into routine primary health care. Community and extension health workers are considered key actors in prevention, early detection, referral, and family education, particularly in low- and middle-income countries. Ethiopia's Health Extension Program (HEP), launched in 2003 and expanded to urban settings in 2009, has contributed substantially to improvements in maternal and child health, sanitation, immunization, and disease prevention. While national strategies acknowledge disability prevention and early intervention, these issues are not clearly embedded within Urban Health Extension Program packages. Evidence on how UHEWs engage with disability prevention and early identification in practice remains limited, particularly in rapidly urbanizing contexts such as Addis Ababa. Problem Statement Despite the presence of national policies, guidelines, and strategic frameworks supporting disability prevention and early identification, these commitments have not been effectively translated into routine urban health extension practice. Disability-related activities are not clearly defined within UHEWs' job descriptions, training curricula, supervision systems, or monitoring tools. As a result, early identification of disability at the community level is weak, opportunities for early intervention are missed, and families receive limited guidance. The disconnect between policy and practice necessitates a closer examination of UHEWs' experiences to identify gaps, challenges, and opportunities for strengthening disability-related services within the UHEP

Objective and Methodology:

Specific Objectives • To explore opportunities for UHEWs in disability prevention and early identification
• To identify practical challenges faced by UHEWs • To examine the availability and use of policies, guidelines, and tools supporting disability-related activities, Study Design A qualitative case study design was employed to explore policy and practice related to disability prevention and early identification within the Urban Health Extension Program. Study Setting and Participants The study was conducted in Addis Ababa City Administration. Key informants were purposively selected from the Ministry of Health, Addis Ababa City Health Bureau, selected sub-cities, supervisors, and Urban Health Extension Workers. Data Collection Data were collected through in-depth interviews and document review. Policy documents, guidelines, standard operating procedures, health extension program packages, and monitoring tools were systematically reviewed to assess their content related to disability prevention and early identification. Data Analysis Data were analyzed using descriptive content analysis. Interview transcripts and documents were coded, categorized, and thematically analyzed. Triangulation of interview data and document review enhanced credibility.

Results:

Results Policy Environment Ethiopia has multiple policy documents and strategies supporting maternal, child, and disability-related health services. However, these policies are largely general and lack operational guidance for frontline implementation by UHEWs. Role of Urban Health Extension Workers UHEWs are primarily evaluated based on indicators related to immunization, maternal health, sanitation, and communicable disease control. Disability prevention and early identification are not included in performance indicators, daily checklists, or reporting formats. Gaps in Practice • Absence of standardized tools for early identification of disability • Limited pre-service and in-service training on disability • Weak supervision and accountability mechanisms • Poor coordination with education and social services Perception Gap National-level stakeholders perceived policy flexibility as strength, while sub-city and woreda-level actors viewed guidelines as abstract and insufficient for practical implementation.

Conclusion:

Although Ethiopia has a favorable policy environment for disability prevention, Urban Health Extension Workers are not adequately supported to operationalize these policies. Integrating disability prevention

and early identification into UHEP packages, job descriptions, training curricula, and supervision systems is critical. Strengthening collaboration between health, education, and social sectors will further enhance early identification and intervention efforts in urban communities.

Keywords:

Urban Health Extension Workers, Disability

Abs. 10

10. Individual and System-Level Intervention Strategies to Promote Active Living among Office-Based Employees in Ethiopia. *Abel Negussie Gebregziabher*

Background:

The rising burden of non-communicable diseases (NCDs) in low- and middle-income countries, including Ethiopia, calls for evidence-based and locally appropriate public health interventions that target modifiable risk factors such as low levels of physical activity (PA) and high levels of sedentary behavior (SB). However, little is known about what intervention approaches and strategies can be used to effectively and feasibly attain the desired goals in these movement behaviors.

Objective and Methodology:

This study explored the perspectives of office workers and key informants on potential strategies to increase PA and reduce SB among Ethiopian office-based employees. Using a participatory qualitative design, we conducted in-depth interviews with 26 office workers and 7 key informants (NCD program coordinators and physical exercise coaches) in Hawassa, southern Ethiopia. The interviews were audio-recorded, transcribed verbatim, translated into English, and analyzed using thematic analysis. Findings were interpreted as individual-level (“i-frame”) and system-level (“s-frame”) intervention strategies.

Results:

Participants proposed six individual-level and four system-level strategies. Individual-level strategies included educational support to raise awareness about PA and SB, personalized follow-up support, promotion of moderate-to-vigorous PA as a better strategy to increase total daily PA, family support, promotion of walking, and supporting with physical exercise skills. System-level strategies included

organizational support, introducing practical workplace health promotion policies and initiatives, office reminder messages, and integrating behavioral interventions with NCD prevention and screening services.

Conclusion:

This study uncovered relevant insights and views on promising intervention strategies to increase PA and reduce SB among office-based working adults in the Ethiopian context, which can be used to inform intervention design. Furthermore, the suggested intervention strategies imply that integrating both individual- and system-level strategies in PA and SB interventions is important for maximizing intervention outcomes.

Abs. 11

11. Integrated Malaria Service Uptake and its Determinants among Pregnant Women in Ethiopia: Multi-level Analysis of 2021/22 National Service Provision Assessment. *Kassawmar Angaw Bogale*

Background:

Malaria in pregnancy poses significant health risks to both mothers and their unborn children in Tropical and subtropical countries including Ethiopia. Integrating essential malaria services into routine antenatal care (ANC) is crucial for effective prevention and control. However, evidence on the extent and determinants of this integration in Ethiopia remains limited.

Objective and Methodology:

This study aimed to assess the integration of malaria services into ANC and identify associated factors using the 2021/22 Ethiopia Service Provision Assessment survey. A cross-sectional study was conducted using nationally representative service provision assessment survey data from 4273 pregnant women nested across 662 health facilities. Factors were selected using the WHO MiP framework. Multilevel logistic regression models were applied to identify significant factors influencing integrated service uptake.

Results:

Only 7.9% of pregnant women received fully integrated malaria services during ANC, with substantial regional disparities. At the client level, women with two previous pregnancies (AOR = 1.67, 95% CI: 1.06–2.62), attending three or more ANC visits (AOR = 1.58, 95% CI: 1.04–2.40) and client who received an Insecticide-Treated Net during ANC (AOR = 2.81, 95% CI: 1.29–6.12) were more likely to receive integrated malaria services than the counterparts. At the facility level, facilities that provided malaria training (AOR = 4.24, 95% CI: 1.80–10.0) and services in rural facilities (AOR = 2.73, 95% CI: 1.04–7.19) were more likely to be integrated with malaria services.

Conclusion:

The integration of malaria services into ANC remains critically low in Ethiopia, constrained by regional disparities and multilevel factors. Strengthen continuity of ANC follow up, updating policy on ITN distribution, strengthening providers' capacity, and addressing geographic disparities to accelerate progress toward WHO maternal health targets.

Keywords:

Pregnant women, Malaria service integration, ANC, multilevel, SPA, and Ethiopia

Abs. 12

12. Epidemiological Patterns and Regional Variation of Major Diseases in Ethiopia: Strategic Implications for Public Health Response. *Shirega Minuye*

Background:

Ethiopia's diverse geography, socio-economic conditions, and varying levels of access to healthcare services have contributed to notable regional differences in disease burden. While progress has been made in addressing public health challenges, there remains a relative scarcity of comprehensive studies that systematically examine the epidemiological patterns of the top ten major diseases across the country. A deeper exploration of these variations is essential to provide evidence that can guide policymakers, strengthen regional health strategies, and support the development of equitable and context-sensitive public health responses.

Objective and Methodology:

Objective of the Study: The objective of the study is to analyze the distribution of major communicable and non-communicable diseases across different regions of Ethiopia, identify the determinants driving these variations, and propose strategic responses to strengthen health systems. Methodology: A mixed-methods approach was employed, combining quantitative analysis of national health survey data, hospital records, and regional health related reports with qualitative insights from interviews with public health experts.

Results:

Results reveal that communicable diseases such as malaria, tuberculosis, and diarrheal illnesses remain highly prevalent in rural and lowland regions, while respiratory infections dominate in densely populated urban settlements. In contrast, non-communicable diseases including hypertension, diabetes, and cardiovascular conditions are rising sharply in metropolitan areas such as Addis Ababa and regional capitals. These disparities reflect differences in geography, healthcare infrastructure, lifestyle transitions, and social determinants of health.

Conclusion:

Conclusion: Ethiopia's disease burden is heterogeneous and region-specific, requiring differentiated approaches and strategies. Addressing these disparities is essential for achieving equitable health outcomes and advancing toward universal health coverage. Recommendations: To respond effectively, Ethiopia should strengthen integrated disease surveillance systems, expand primary healthcare infrastructure in underserved regions, prioritize preventive interventions tailored to local epidemiology, balance resources between communicable and non-communicable diseases, and foster multi-sectoral collaboration to address social determinants of health. Capacity building for health professionals and evidence-based policymaking are critical to ensuring sustainable and equitable public health outcomes.

Abs. 13

13. Exploring the Integration of Social and Behavior Change Communication into Targeted NTD Mass Drug Administration Campaigns: Insights and Best Practices from Jimma, Ethiopia.
Daba Abdissa Keneni

Background:

Despite extensive efforts to control and eliminate neglected tropical diseases (NTDs), these diseases persist as a major public health problem. Current strategies primarily focus on mass drug administration (MDA) campaigns, often neglecting essential complementary interventions like social and behavior change communication (SBCC). This oversight is crucial, as behavior is complex and shaped by various factors, making its modification vital for NTD elimination. This study sought to investigate the integration of SBCC into MDA from the perspectives of both program beneficiaries and stakeholders involved in its implementation.

Objective and Methodology:

A qualitative study was conducted in Jimma, Ethiopia, following the end of the program in June and September 2022. Purposive sampling was employed to select participants from community members and stakeholders involved in the study's implementation and the study was guided by RE-AIM framework. The data collection included four focus group discussions, five expert group discussions, and ten key informant interviews. The study designed and implemented a tailored SBCC strategy integrated with MDA campaign to promote knowledge, preventive practices for NTDs and enhance the acceptance of the MDA campaign. Data were analyzed using thematic analysis, facilitated by Atlas.ti version 7.1.5.

Results:

The results were promising across the RE-AIM dimensions. The SBCC intervention demonstrated promising reach through multiple channels and strategies with improvements in knowledge, and practices related to NTDs, alongside an increased uptake of MDA services. Stakeholders expressed a willingness to incorporate SBCC components into their routine practices. Furthermore, the implementation status was promising; despite some challenges. Adaptation strategies were employed and participants suggested various strategies to enhance the effective integration of SBCC for future MDA campaigns. Best practices

identified include the use of multi-channel approaches to disseminate key campaign messages, thorough pre-campaign preparation and engagement of relevant stakeholders throughout the study.

Conclusion:

Overall, the results of the SBCC intervention were promising. The findings indicate that the SBCC intervention has the potential to be a valuable tool for improving NTD-related knowledge, behaviors, and MDA coverage in the target communities. These findings advocate for the continued integration of SBCC in MDA campaigns to maximize the effectiveness of NTD control efforts.

Abs. 14

14. Low Prevalence of Diabetes Mellitus among Older People in Rural Sidama in Ethiopia: A Two-Step Community-Based Cross-Sectional Study. *Desalegn Tsegaw Hibstu*

Background:

Despite the growing diabetes burden in Ethiopia, most studies rely on measuring fasting blood sugar (FBS), providing only short-term blood sugar levels. In contrast, glycated haemoglobin A1c, (HbA1c), offers a more reliable measure of long-term blood glucose levels over 2-3 months and is used.

Objective and Methodology:

Objective: To determine the prevalence of undiagnosed diabetes and identify associated factors using a two-step diagnostic method combining fasting blood sugar with confirmatory glycated haemoglobin A1c (HbA1c) testing among adults 45 years and above in rural Sidama, Ethiopia. Methods: A community-based cross-sectional study was conducted from April 1 to July 31, 2024. A total of 2,875 adults aged 45 and above were included in the survey, identified through a census. Data were collected using a pretested, structured, interviewer-administered questionnaire adapted from the WHO STEP-wise approach. Physical and biochemical measurements followed standardized protocols. Diabetes diagnosis was based on a two-step diagnostic approach using fasting blood sugar ≥ 7 mmol/L followed by confirmatory HbA1c testing (≥ 48 mmol/mol). Data were analyzed using Stata version 17. Descriptive, bivariable, and multivariable linear regression analyses were used. Model assumptions and model fit were assessed. Adjusted regression coefficient (ARC) with 95% confidence intervals (CI) was estimated to identify factors associated with undiagnosed diabetes.

Results:

The prevalence of undiagnosed diabetes confirmed by haemoglobin A1c was 1.2% (35 of 2,871; 95% CI: 0.9 – 1.7%). Previously diagnosed diabetes was found in 0.5% (14 of 2,875; 95% CI: 0.3% - 0.8%). The total diabetes prevalence, confirmed by haemoglobin A1c or prior diagnosis, was 1.7% (49 of 2871; 95% CI: 1.3% - 2.3%). Nearly half, 46.2% (1,327 of 2,875), were undernourished. Advanced age ($\beta = 0.18$; 95% CI: 0.06, 0.30, $p = 0.004$), estimated annual income ($\beta = 0.14$; 95% CI: 0.01, 0.27; $p = 0.039$), and waist-to-body mass index ($\beta = 0.08$; 95% CI: 0.01, 0.16; $p = 0.032$) were significantly associated with elevated fasting blood sugar levels.

Conclusion:

The study found a low prevalence of undiagnosed diabetes in this rural community. Increasing age, higher income and waist-to body mass index were associated with elevated fasting blood sugar levels. To sustain the low diabetes prevalence, routine community-based screening and context specific health education are recommended. Additionally, implementing routine malnutrition screening and providing targeted nutritional support is essential.

Keywords:

Undiagnosed diabetes; glycated haemoglobin (HbA1c); rural population; Ethiopia

RMNCH

Abs. 15

15. Maternal and Neonatal Outcomes Associated with Cesarean Section in Low- and Middle-Income Countries: Systematic Review and Meta-Analysis. *Tomas Yeheyis Ferede*

Background:

Caesarean section (CS) is a lifesaving intervention for women and newborns when complications arise during pregnancy or labour. In low- and middle-income countries (LMICs), access and outcomes vary widely, raising concerns about its benefits, risks, and equity.

Objective and Methodology:

This systematic review and meta-analysis aimed to synthesise evidence on CS outcomes in LMICs to inform practice and policy. We searched MEDLINE, PubMed, Web of Science, Scopus, Embase, CINHALL, and Emcare, and grey literature from Google Scholar to identify studies that report maternal and neonatal outcomes associated with CS from 1 January 2010 to 26 October 2025. The review followed PRISMA guidelines. Two reviewers independently screened studies and assessed quality using JBI tools. Evidence was synthesised using a random effect model with restricted maximum likelihood (REML), reporting pooled estimates with 95% confidence and prediction intervals. Incidence, study-level modifiers, subgroup and sensitivity analyses were assessed.

Results:

A total of 104 studies were included compared with vaginal delivery, CS was associated with higher odds of maternal death (AOR=2.89(95% CI 2.40-3.47; I² = 0.0%), maternal near miss (AOR=2.42 (95% CI 1.11-5.27; I² = 96.46%), and puerperal sepsis (AOR = 2.91; 95% CI 2.12–4.01; I² = 0.0%). CS was also associated with higher odds of neonatal mortality (AOR = 1.47; 95% CI 0.98–2.22; I² = 84.8%), neonatal near miss (AOR=2.08; 95% CI 1.45–2.98; I² = 78.39%), and perinatal asphyxia (AOR 2.36;95% CI 1.40-3.99; I²=56.89%). Risks were higher following emergency CS and in resource-limited settings.

Conclusion:

CS is a life-saving procedure. However, it was associated with adverse maternal and neonatal outcomes in LMICs, especially in emergency and resource-limited settings. Improving timely access to safe CS, ensuring appropriate use, strengthening intrapartum and postpartum care, and standardizing reporting are essential to guide practice and improve outcomes.

Keywords:

Cesarean section, low- and middle-income countries, Outcomes, systematic review, meta-analysis

Abs. 16

16. Effect of Household Food Insecurity on Birth Weight: A Causal Effect Analysis Using Propensity Score Matching. *Mohamedawel Mohamedniguss Ebrahim*

Background:

Food insecurity, a situation characterized by the absence or limited access to sufficient quality and quantity of food to meet dietary needs, exposes mothers to adverse pregnancy outcomes such as birth defects and low birth weight. Nevertheless, despite the massive burden of food insecurity among pregnant and lactating women residing in resource-limited and war-affected settings like Tigray, Northern Ethiopia, there is a scarcity of evidence on the effect of food insecurity on pregnancy outcomes, more specifically birth-weight.

Objective and Methodology:

The aim of this study was to assess the causal effect of food insecurity on birth-weight using propensity score matching. A facility-based cross-sectional study was conducted at Ayder Comprehensive Specialized Hospital, Mekelle, Tigray Region, Northern Ethiopia, from December 2024 to March 2025. The study included 286 mother–newborn pairs recruited using a systematic random sampling technique. Data were collected by trained midwives using a structured questionnaire and checklist. Food security status was assessed using the Household Food Insecurity Access Scale. Data were analyzed using STATA version 19. Propensity score matching (PSM) was applied to assess the effect of household food insecurity on birth-weight. The results of PSM are reported using the Average Treatment Effect (ATE) and the Average Treatment Effect on the Treated (ATET). In addition, crude comparisons of mean differences were made using either the Independent-Samples T-Test or One-Way ANOVA. Statistical significance was declared at a p-value less than 0.05.

Results:

The mean age of the mothers was 28.7 years (SD = 3.9). Of the total participants, 177 (61.8%) were food secure, while the remaining 109 (38.9%) were food insecure. Among the food-insecure group, 49 (17.1%) experienced mild food insecurity, 40 (14.0%) moderate food insecurity, and 20 (7.0%) severe food insecurity. The magnitude of low birth-weight (LBW) among food-insecure mothers was 48.6%,

compared to 11.5% among food-secure mothers. Overall, the prevalence of LBW was 25.5%. On average, the birth-weight of newborns born to food-insecure mothers was 204 grams lower (ATE = -204.0, 95% CI: -289.3 to -118.7, $p < 0.001$) than that of newborns born to food-secure mothers. Furthermore, the birth-weight of newborns born to food-insecure mothers was 218 grams lower compared to the birth-weight they would have had if their mothers had been food secure (ATET = -218.3, 95% CI: -411.2 to -25.3, $p = 0.027$).

Conclusion:

Maternal food insecurity significantly decreases neonatal birth-weight and increases the magnitude of LBW. Hence, addressing maternal food access could substantially decrease the burden of LBW and its related complications. During antenatal care, emphasis should be given to assessing the nutritional and food security status of a pregnant woman and integrating social and behavioral nutrition interventions that promote food security. In addition, a focus should be given to nutrition education before and during pregnancy. Policymakers should also ensure food security and strengthen sufficient nutrition conditions by empowering women.

Keywords:

Birth Weight, Conflict, Ethiopia, Food Insecurity, Pregnancy, Propensity Score

Abs. 17

17. From Barriers to Solutions: Maternal Continuum of Care Utilization in Rural Ethiopia— Findings from a Cross-Sectional Household Survey. *Aleme Mekuria Belachew*

Background:

The continuum of maternity care refers to an integrated sequence of health services delivered across time and space, which women should access without interruption. It is a vital strategy for reducing maternal morbidity and mortality.

Objective and Methodology:

Objective: to assess the level of maternal continuum of care utilization and its associated factors among women in the Gamo Zone, South Ethiopia. Method: A community-based Cross-Sectional study was

conducted from Feb 1 to 30, 2025, among women who had given birth within the 12 months preceding the data collection. A multi-stage sampling technique was used to select the study population. A total of 1,294 women were selected using simple random sampling. Data were collected using Kobo Collect and analyzed in SPSS version 25.0. Binary logistic regression was used to examine associations between independent variables and the continuum of care. A multivariable model was fitted, and adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported. Statistical significance was set at $P < 0.05$.

Results:

The overall rate of maternal continuum of care (CoC) utilization (defined as receiving four or more ANC visits, institutional delivery, and Postnatal care within two days after birth) was 16.1%. Key factors significantly associated with full CoC utilization included: knowledge of pregnancy danger signs (AOR = 12.59; 95% CI: 7.84, 20.02), perceived shorter distance to health facility (AOR = 2.12; 95% CI: 1.28, 3.53), urban residency (AOR = 12.00; 95% CI: 7.57, 20.00), maternal educational status (AOR = 2.93; 95% CI: 1.33, 6.45), and having Birth Preparedness and Complication Readiness (BPCR) plan (AOR = 4.96; 95% CI: 2.89, 8.53).

Conclusion:

The overall CoC utilization in the study area remains low, indicating that women are not getting the maximum possible health benefits from the existing healthcare services. Place of residence, distance to reach health facility, maternal education, knowledge of pregnancy danger signs, plan for Birth Preparedness and Complication Readiness were the factors affecting CoC utilization. Therefore, Policymakers of the existing health system should consider strategies that focus on empowering women's education, counselling women about pregnancy danger signs, and implementing the BPCR, as well as ensuring the physical accessibility of health facilities within a reasonable distance to enhance maternal continuum care utilization.

Keywords:

Maternal Health Services, Continuum of care, Birth Preparedness, Rural Ethiopia

Abs. 18

18. Effectiveness of Baby Friendly Hospital Initiative on Early Initiation and Exclusive Breastfeeding Practice: Systematic Review and Meta-Analysis. *Mahilet Berhanu Habte*

Background:

Poor breastfeeding practices prone to Infant and child morbidities and mortalities mainly common in LMIC. The Baby Friendly Hospital Initiative (BFHI) promotes, protects, and supports optimal breastfeeding through facility-based strategies. While prior studies have examined individual BFHI components in specific contexts, global evidence on its overall impact remains limited.

Objective and Methodology:

This systematic review and meta-analysis aimed to evaluate the BFHI's effectiveness in improving early initiation and exclusive breastfeeding practices worldwide based on literatures searched from PUBMED, Scopus, web of science and google scholar. RCT, CRCT, and Quasi experimental included and Random-effects meta-analysis models

Results:

Thirty studies met the inclusion criteria. BFHI was associated with increased early initiation of breastfeeding (pooled RR 1.43; 95% CI: 1.12-1.81; I² = 97.1%). Positive associations were also observed for exclusive breastfeeding at four months (RR 1.18, 95% CI: 1.08-1.29; I² = 61.7%) and at six months (RR 1.56, 95% CI: 1.14-2.14; I² = 82.8%). Substantial heterogeneity reflected variability in study design, BFHI implementation fidelity, and context.

Conclusion:

Our findings suggest that BFHI is effective in improving breastfeeding practices globally. However, study variability and partial implementation may limit generalizability. High-quality RCTs assessing full BFHI implementation are needed to strengthen evidence and guide global maternal-child health policy.

Abs. 19

19. Trends and Disparities in Antenatal Care Utilization: A Multilevel Analysis of Four-plus and Eight-plus ANC Visits among Urban Women in Ethiopia. *Worku Dechassa Heyi*

Background:

Introduction: Antenatal care(ANC) is the gateway of the continuum of reproductive health care, offering a framework for complication prevention, screening, diagnosis, and health promotion.

Objective and Methodology:

Objective: This study examined disparities, trends and associated factors of ANC utilization (ANC4+ and ANC8+) among urban women in Ethiopia between 2000 and 2019. Methods: We analyzed five rounds of Ethiopian Demographic and Health Surveys (2000-2019) data, disaggregated by wealth, education, and region using Stata version 16.1. Multilevel logistic regression identified factors associated with four-plus and eight-plus ANC utilization. Adjusted odds ratios (AOR) with 95% confidence intervals were reported at $p < 0.05$.

Results:

Results: ANC4+ utilization increased from 43.1% in 2000 to 58.7% in 2019. while, ANC8+ utilization declined from 11.4% to 3.6%. Among the urban non-poor, ANC4+ rose from 60.5% to 81.8% compared to 37.8% to 48.7% among the urban poor. Regional disparities were pronounced: Addis Ababa showed the highest ANC4+ use (72% to 82%), but a decline in ANC8+(38% to 10%). Somali region had the lowest ANC4+(9% to 24%) utilization, though it increased from 9% in 2000 to 24% in 2019 and Gambella had the lowest ANC8+ utilization. Wealth disparities were strong, with non-poor women more likely to utilize ANC4+(AOR: 2.43, 95% CI: 2.12–2.78) and ANC8+ (AOR: 3.02, 95% CI: 2.49–3.65) than poor women. Education also significantly associated: women with secondary or higher education had greater odds of ANC4+ (AOR: 3.02; 95% CI: 2.54–3.59) and ANC8+ (AOR: 2.13; 95% CI: 1.63–2.78). Women aged 30-34 years had higher odds of utilizing ANC4+ (AOR: 2.89, 95% CI: 2.10–3.98) and ANC8+ (AOR: 2.22, 95% CI: 1.37–3.59). Weekly media exposure was positively associated with ANC4+ (AOR: 1.53, 95% CI: 1.28–1.83).

Conclusion:

Conclusion: Significant disparities in ANC (ANC4+ and ANC8+) utilization persist across wealth, education and regions in urban Ethiopia. Wealth status was the strongest predictor, with non-poor women steadily advantaged. Maternal education, age, media exposure, and marital status also showed positive associations, while regional disparities persisted, with Addis Ababa outperforming other urban areas. Improving ANC uptake requires targeted interventions for urban poor women, alongside media-based awareness and educational initiatives.

Keywords:

Trends, ANC4+, ANC8+, Utilization, Urban, poor, Ethiopia.

Abs. 20**20. Help-Seeking Behavior and Quality of Life among Women with Stress, Anxiety, and Depression in Northwest Ethiopia: A Community-Based Study. *Shegaye Shumet Mekonen*****Background:**

Background: Women of reproductive age face unique stressors that can contribute to mental health challenges. In low-resource settings like Ethiopia, help-seeking behavior for mental health issues remains low, potentially compromising women's quality of life.

Objective and Methodology:

Objective: This study aims to assess help-seeking behavior and quality of life among women of reproductive age experiencing stress, anxiety, and depression. Methods: A community-based cross-sectional study was conducted in northwest Ethiopia from March to May 2021, using an interviewer-administered questionnaire for data collection. Screening of stress, anxiety, and depression was conducted among 804 study participants. The World Health Organization Quality of Life (WHOQOL-Brief) and the General Help-Seeking Questionnaire were used to assess health-related quality of life and help-seeking behavior, respectively. Independent sample t-tests and ANOVA were conducted to examine group differences in quality of life, while simple and multivariable linear regression analyses were performed to identify factors associated with quality of life among women experiencing stress, anxiety, and depression.

Results:

Result: The average quality of life score among women of reproductive age in the stress group was 35.27 (95% CI: 34.27, 36.28), followed by the anxiety group with a mean score of 35.05 (95% CI: 34.24, 35.87), and the lowest in the depression group at 34.04 (95% CI: 33.26, 34.81). On average, 21.75% of participants sought formal help for stress, 24.6% for anxiety, and 23.65% for depression. Quality of life among women experiencing stress varied across sociodemographic variables. Women who were divorced or widowed had a mean (SD) quality of life score of 20.22 ± 0.83 , while those residing in rural areas had a mean (SD) score of 9.57 ± 1.75 . Women with no formal education had a mean score of 20.33 ± 4.05 , and farmers had a mean score of 20.46 ± 3.06 . Additionally, women with anxiety had lower mean scores in psychological and social quality of life, at 16.42 ± 2.55 and 8.96 ± 1.73 , respectively. Women who used contraceptives reported a better quality of life, with a mean (SD) score of 22.71 ± 4.07 , compared to those who did not. Women with depression have low mean score of quality of life with mean score of 7.67 ± 1.37 .

Conclusion:

Conclusion: Women of reproductive age in this study exhibited a low quality of life and underutilized formal help sources across all disorders. Quality of life varied based on factors such as marital status, occupation, education, residence, suicidal behaviors, contraceptive use, and history of abortion. Additionally, being divorced or widowed, living in rural areas, having a history of abortion, and having an unemployed husband were significantly associated with lower quality of life. Therefore, to address these disparities, improving access to reproductive health services, integrating mental health screening and support into primary healthcare, and implementing appropriate interventions could enhance help-seeking behavior and improve the quality of life for women of reproductive age.

Abs. 21

21. Time to First Dose of Measles-Containing Vaccine and Associated Factors among Infants in Ethiopia: A Survival Analysis from Performance Monitoring for Action Data. *Eyob Tilahun Abeje*

Background:

The measles-containing vaccine (MCV) prevents measles outbreak when administered at the right time in measles-endemic areas. Many infants received the initial dose of the measles vaccine later than the ideal time frame, and significant others missed the vaccination, causing a recurrent measles outbreak in Ethiopia.

Objective and Methodology:

This study assessed the time to the first dose of a measles-containing vaccine and associated factors among infants in Ethiopia. A cohort of 1,770 mother-infant pairs was analysed using data from the performance monitoring for action Ethiopia dataset. PMA cohort-2 Ethiopian data set was collected in Addis Ababa, Amhara, Oromia and SNNP regions between November 2021 and August 2023. The key independent variables were socio-demographic characteristics, maternal health service utilization, and pregnancy intention. Multiple imputation was used to handle missing data. Survival analysis was conducted using R programming language version 4.4.1. Multicollinearity was assessed using Generalized variance inflation factors (GVIF), and model fit was evaluated using concordance index and overall model significance.

Results:

Among 1,770 infants followed, only 27% were vaccinated timely, within 9-10 months of age (survival probability = 0.73), and 53.4% had not yet received MCV1 at 12 months of age. The hazard of receiving the first dose of measles vaccine (MCV1) was 35% lower among infants from pregnancies that were not desired at all (AHR = 0.65, 95% CI: 0.46-0.93) and 21% lower among those infants from pregnancies that were initially undesired but later became wanted (AHR = 0.79, 95% CI: 0.65-0.96), compared to infants from pregnancies that were desired from the beginning.

Conclusion:

Despite progress in the uptake of the first dose of measles vaccine, timely vaccination in Ethiopia is still low, and many infants in Ethiopia miss the immunization. Institutional delivery, maternal intention regarding pregnancy, religion, and wealth quantile were key predictors of the timeliness of the first dose of measles vaccine. Interventions encouraging institutional deliveries, supporting unintended pregnancy, working with religious leaders, and conducting continuous outreach to immunization services are necessary to improve the timely uptake of the first dose of measles vaccine.

Keywords:

Measles vaccination, child health, immunization timing, survival analysis, shared frailty model.

Abs. 22**22. Effect of Health Belief Model-Based Education for Companions of Choice on Adherence to Support Roles: A Cluster Randomized Controlled Trial. *Gedamu Abera Zegeye*****Background:**

In Ethiopia, maternal and neonatal health outcomes remain concerning, underscoring the need for targeted interventions that educate and empower chosen companions. Although previous studies suggest that structured educational programs can improve health behaviors, there is limited evidence regarding their effectiveness for companions of choice in Ethiopia.

Objective and Methodology:

Objective: To evaluate the effect of Health Belief Model-based educational interventions on the adherence of chosen companions to their support roles in Addis Ababa, Ethiopia. **Methods:** A two-arm cluster randomized controlled trial (cRCT) was conducted involving twelve public health facilities and 444 potential companions of choice. The intervention group participated in an 18-week structured role orientation session that included education sessions and leaflets, alongside usual care. This intervention enhanced awareness of the health belief model's components, emphasizing perceived severity, susceptibility, benefits, and barriers related to support roles during childbirth. The control group received usual care only. The study evaluated the primary outcome of companions' adherence to support roles using

validated questionnaires. Statistical differences were assessed using the chi-square test, and the impact of the intervention was estimated using a difference-in-differences model. A generalized linear model was employed to determine the relationship between outcome variables and groups. Statistical significance was defined as $p < 0.05$ with a 95% confidence interval.

Results:

Results: At baseline, both groups had comparable scores for perceived adherence and health belief model constructs. The intervention led to increases in adherence to support roles and perceived benefits by 28.6% and 25.3%, respectively, while reducing perceived barriers by 18.46%. Companions aged 35–39 showed 10% lower adherence to support roles than those aged 45 and older. Partners or spouses were more likely to adhere (OR = 1.1), and support during induced labor increased adherence (OR = 1.1). Companions in the control group had 44% lower adherence than those in the intervention group (OR = 0.662). A longer time before the intervention correlated with a 46% reduced likelihood of adherence (OR = 0.64), while post-treatment interactions increased the likelihood of adherence by 1.5 times (OR = 1.5).

Conclusion:

Conclusion: The intervention enhanced companions' perception and adherence to their support role during childbirth. Key enabling factors included timing, emotional support, and continuous communication. It is recommended to develop tailored support programs for companions to optimize labor companionship.

Keywords:

Companion Support, Health Belief Model-Based Education, Cluster Randomized Controlled Trial, Ethiopia.

Abs. 23

23. Bridging Policy and Practice: A Scoping Review of Maternal Health Policies and Community-Level Interventions for Pre-eclampsia in Ethiopia. *Trhas Tadesse Berhe*

Background:

Maternal mortality remains a major public health challenge in Ethiopia despite notable progress over the past two decades. Hypertensive disorders of pregnancy, particularly pre-eclampsia and eclampsia are

among the leading direct causes of maternal and perinatal mortality. While national maternal health policies emphasize antenatal care, referral systems, and community engagement, the extent to which these policies explicitly address community-level prevention, early detection, and referral for pre-eclampsia remains unclear.

Objective and Methodology:

Objective: To map and synthesize Ethiopia's maternal health policy landscape with a specific focus on community-level approaches to pre-eclampsia prevention, early detection, and referral, and to identify policy-practice gaps to inform the development of a context-specific community conversation toolkit.

Methods: A policy landscape analysis using a scoping review design was conducted, guided by the Arksey and O'Malley framework and refined by Levac et al. Peer-reviewed literature and grey documents published from 2010 onward were retrieved from major databases and institutional sources. Data were extracted and synthesized thematically across policy frameworks, implementation mechanisms, referral pathways, community engagement strategies, and monitoring systems. Document quality was assessed using adapted JBI, AACODS, and PRISMA-ScR criteria.

Results:

Thirty-seven documents were included, comprising national strategies, guidelines, operational plans, and research studies. Ethiopia has a robust maternal health policy framework; however, explicit operational guidance for community-level pre-eclampsia interventions was limited. Policies predominantly prioritize facility-based ANC and referral systems, with minimal direction for community health workers on early detection, risk assessment, follow-up, and referral. Evidence also indicated inconsistent provider knowledge and practices, shortages of essential screening equipment, suboptimal ANC utilization, low community awareness of pre-eclampsia danger signs, and weak monitoring of community engagement outcomes highlighting a persistent gap between policy intent and implementation.

Conclusion:

Although Ethiopia has a strong maternal health policy foundation, this has not been fully translated into effective community-level action for pre-eclampsia prevention and early referral. Bridging this gap requires standardized and culturally sensitive IEC/BCC tools, strengthened training and mentorship for frontline providers, improved monitoring and feedback mechanisms, and inclusive community

engagement strategies. Strengthening policy–practice alignment at the community level is critical to improving early detection and reducing maternal and perinatal morbidity and mortality, particularly in peri-urban and rural settings.

Keywords:

Keywords: Pre-eclampsia; Maternal health policy; Community engagement; Referral systems; Scoping review; Ethiopia

Abs. 24

24. Food Crises and Coping Strategies in War-Affected Communities in Tigray, Ethiopia: A Community-Based Cross-Sectional Study among Households. *Hadush Gebregziabher Tsegay*

Background:

Background: Armed conflict often leads to severe food insecurity and malnutrition in affected communities. a prolonged conflict lasting exacerbated hunger and food shortages. Despite this, limited information exists regarding the coping strategies employed by residents facing food and financial scarcity.

Objective and Methodology:

Objective: This study aimed to assess the coping mechanisms used by households in the urban setting of Mekelle City, Northern Ethiopia. Methods: A community-based cross-sectional survey was conducted from May to June 2022 among 315 randomly selected households in Mekelle City. Data were collected using a pre-tested structured questionnaire, then entered, cleaned, coded, and analyzed with Stata version 14.

Results:

Result: The current analysis indicates that 272 households, or 87%, experienced food shortages. To cope with this situation, 101 households (32.6%) reduced the size of their meals. Additionally, 85 households (27.3%) opted to lower the quality of their meals or substituted less preferred dishes. Furthermore, approximately 72 households (23.2%) skipped meals as a strategy to manage food scarcity. The mean reduced coping strategy index (rCSI) for households that skipped meals is 181.84 (SD: 112.5), whereas it

is 38.6 for those that did not skip meals ($p < 0.01$). For households that reduced the food content, the mean rCSI is 152.4, compared to 51.12 for those who did not reduce food content ($p < 0.01$).

Conclusion:

Conclusion and Recommendation War-affected communities in Mekelle are enduring severe food crises, employing detrimental coping strategies such as reducing meal quantity and quality. Humanitarian interventions, including targeted food distribution and supplementary feeding programs, are urgently needed to alleviate acute malnutrition and support recovery.

Keywords:

Coping, Conflict, Meal, Shortage, Siege, Skipping.

Abs. 25

25. Lived Experience of Self-Induced Abortion Among Female Students of Dilla University South Ethiopia: A Qualitative Phenomenological Study. *Yohannes Addisu Wondimagegne*

Background:

Background: Unsafe abortion remains a leading cause of maternal mortality in countries such as Ethiopia, where strict laws and limited access to reproductive health services prevail. Female college students are particularly vulnerable, facing stigma, secrecy, and a lack of reliable data to guide interventions.

Objective and Methodology:

Objective: The study aimed to explore the lived experiences of self-induced abortion among female students at Dilla University and the factors influencing their decisions. Methods: A qualitative phenomenological study design was used to explore self-induced abortion experiences among female students at Dilla University, South Ethiopia. Twelve participants were purposively sampled. Data were collected via semi-structured in-depth interviews. Data were analyzed using a thematic approach, involving familiarization, coding, and the identification of emergent themes. Findings were presented through thick narrative descriptions supported by direct verbatim quotes. Confidentiality was ensured through coding, and trustworthiness was maintained using triangulation, member checking, and peer debriefing.

Results:

Results: The study found that many young, unmarried students' self-induced abortions due to unplanned pregnancies fear of stigma, and lack of support. Participants described feeling trapped, abandoned by partners, and unable to tell their families. This fear pushed them into secrecy and unsafe decisions. Most relied on unsafe methods suggested by peers or online, resulting in severe pain, prolonged bleeding, guilt, and emotional isolation. With only limited support and no safe services, they coped through secrecy, prayer, and one trusted friend.

Conclusion:

Conclusion: The study highlights that self-induced abortion among students is marked by secrecy, emotional distress, and isolation, driven by unplanned pregnancies and lack of support. Findings emphasize the need for reproductive health education, confidential counseling, and youth-friendly services. Policies should ensure accessible campus-based care, comprehensive sexuality education, and stigma reduction. Future research should examine gender dynamics, contraceptive barriers, and interventions to prevent unsafe abortions.

Keywords:

Self-induced abortion, female students, lived experience, South Ethiopia.

Digital Health**Abs. 26****26. Tracing the Epidemiological Shift in Southwestern Ethiopia: A 14-year Analysis of the Gilgel-Gibe Field Research Center Database. *Bikila Regassa Feyisa*****Background:**

In developing countries like Ethiopia, the Health and Demographic Surveillance System (HDSS) is a reliable and accurate community-based mortality data source to investigate epidemiological transitions. Analyzing deaths and causes of death using such data sources helps to devise appropriate and targeted interventions.

Objective and Methodology:

These analyses investigated epidemiological transitions in communities of southwest Ethiopia. A population-based longitudinal follow-up of a dynamic cohort was employed using Gilgel Gibe Field research center (GGFRC) datasets. All deaths from 2006 to 2019 in the surveillance site and broad causes of deaths from 2009 to 2016 were included in the analysis using R Studio statistical software. Trends in overall mortality and changes in proportions of major causes of death were calculated. Mann-Kendall statistical trend tests and segmented regression analysis were used to declare statistical significance of changes in trends of the mortality at $P < 0.05$.

Results:

Over the 14 years, a total of 5,127 deaths were recorded, resulting in 822,909.48 person-years of observation. The overall mortality rate was 6.23 (95% CI: 6.06-6.4) per 1,000 population ($P < 0.001$; $R^2 = 0.85$) in both sexes (6.6 for males and 5.9 for females). The trend in the overall mortality rate significantly decreased ($\tau = -0.9$, $p < 0.001$) from 8.5 in 2006 to 4.0 in 2019 per 1,000 person-years in both sexes (9.1 to 3.9 for males and 7.9 to 4 for females). The age-standardized mortality rate was 5.66 (95% CI: 5.5-5.82) per 1,000 population, showing a significant decreasing trend in both males and females ($\tau = -0.8$; $p < 0.00$). Adults accounted for 2768 (52.4%) of the total deaths. From 2009 to 2016, adult deaths from communicable diseases showed a decrease ($\tau = -0.55$; $P < 0.05$), while an increment was seen in deaths from non-communicable diseases ($\tau = 0.8$; $P < 0.05$).

Conclusion:

The declining mortality level and changes in cause-of-death patterns indicate that the study population is undergoing an epidemiological transition. This finding highlights the importance of strategically realigning health policies and systems to better address the growing burden of chronic diseases among adults.

Keywords:

Cause of death, Epidemiological transitions, GGFRC, Trends, Ethiopia

Abs. 27

27. Automatic Detection of Myocardial Infarction Diseases from Electrocardiogram Signal Based on Non-linear Entropy features and Adaptive-KNN Machine Learning. *Henok Mezemr Besfat*

Background:

Early and accurate detection of Myocardial Infarction (MI) is crucial for improving cardiac function, as it can help prevent the occurrence of a heart attack. Electrocardiogram (ECG) signals provide valuable insights into heart function and can be used to examine relevant aspects of cardiac activity without invasive procedures. Nevertheless, manual diagnostic techniques using ECG signals have proved difficult and need an expert technician for MI diagnosis. Machine Learning (ML) offers a promising approach to automate this process, enabling faster and more accurate identification of MI by analyzing complex patterns in ECG data.

Objective and Methodology:

In this paper, an efficient automated MI detection is proposed based on Optimized Stockwell Transform (OptST), Renyi entropy (RenyEn), dispersion entropy (DispEn), and adaptive K-Nearest Neighbor (A-KNN) algorithm. The RenyEn and DispEn features are extracted from the ECG frequency bands to feed the input of A-KNN ML model to classify five MI diseases.

Results:

The proposed method has been validated on the Physikalisch-Technische Bundesanstalt (PTB) standard database and demonstrated exceptional performance, achieving specificity (Sp) of 98.98%, accuracy (Ac) of 98.08%, Sensitivity of 95.2%, and F-score of 95.21%.

Conclusion:

This proposed method can be contributed to the advancement of automatic cardiac health monitoring for accurate detection of MIs.

Keywords:

Myocardial infarction, Stockwell transform, renyi entropy, dispersion entropy, adaptive KNN

Abs. 28

28. Machine Learning Algorithms for Predicting Surgical Site Infections: Insights from Prospectively Collected Data among General Surgery Patients in Amhara Region. *Meron Asmamaw*

Background:

Background: Surgical site infections (SSIs) pose a significant challenge in Ethiopia, causing longer hospital stays, higher costs, and poor outcomes. While machine learning (ML) could enhance early SSI detection and surgical care, its use in Ethiopian healthcare is still limited.

Objective and Methodology:

Objective: To develop and evaluate ML models for predicting SSIs in resource-limited settings. Methods: This study used institution-based, prospectively collected data originally gathered for a master's thesis on survival analysis. Data from 447 surgical patients were prospectively collected. Preoperative features, including length of preoperative hospital stay, American Society of Anesthesiologists (ASA) score, and socio-demographic factors were considered. Post-discharge SSIs were captured through structured phone follow-up, an innovative, low-cost method that improved infection detection after discharge. Seven ML algorithms, including eXtreme Gradient Boosting, and Random Forest were implemented and evaluated using accuracy, precision, recall, F1-score, and area under the curve (AUC). Model interpretability was enhanced using SHAP plots.

Results:

Results: The overall SSI incidence was 39.1% (175/447), with 123 (70.3%) identified post-discharge via phone follow-up. The eXtreme Gradient Boosting model outperformed other classifiers, achieving an accuracy of 91.7% (95% CI: 88.4%, 94.4%) and an AUC of 0.975. Key predictors included higher ASA score, longer preoperative hospital stay, older age, male sex, and residence. SHAP BeeSwarm and bar plots elucidated feature contributions, providing actionable clinical insights. Phone-based post-discharge follow-up improved SSI detection, enhancing model applicability in low-resource settings.

Conclusion:

Conclusion: Combining phone-based post-discharge follow-up with the eXtreme Gradient Boosting algorithm offers a novel, effective, and scalable method for early SSI prediction in resource-limited settings. This tech-driven approach supports timely, patient-centered care and aligns with Ethiopia's goals for quality healthcare and universal coverage, with potential to improve surgical safety and health equity in similar contexts.

Keywords:

Machine Learning, Surgical Site Infections, General Surgery, SHAP values

Abs. 29**29. Problematic Alcohol Use in Ethiopia: A Community-Based Cross-Sectional Study. *Kefyalew Dagne*****Background:**

Background: Alcohol use disorder (AUD) refers to a spectrum of problematic and excessive patterns of alcohol consumption. It includes drinking at hazardous levels, such as binge or risky drinking, which increases the risk of negative health and social outcomes. At the more severe form of the spectrum, AUD involves harmful drinking and disorders like alcohol abuse and alcohol dependence. These forms of drinking can lead to severe adverse health conditions and negatively affect the physical, psychological, social, and mental well-being of communities, families, and individuals.

Objective and Methodology:

Objectives: This study aims to estimate the community-level prevalence of AUD and identify factors associated with AUD in Central Ethiopia. Methods: A community-based cross-sectional study was conducted in Debre Berhan, Ethiopia, in January and February 2022. We recruited 1,400 participants (≥ 18 years old) using a multistage sampling, and 1,380 completed the study interview. AUD was assessed with the alcohol use disorder identification test (AUDIT score). We conducted logistic regression analyses to identify factors associated with AUD in the overall sample and within sex-stratified subgroups.

Results:

Results: The prevalence of AUD was 15.5% (95% CI: 13.7%, 17.5%) overall, and 26.3% (95% CI: 23.2%, 29.6%) and 3.4% (95% CI: 2.2%, 5.1%) for men and women, respectively. For the overall sample, factors associated with AUD included being male (AOR = 7.83; 95% CI: 4.59, 13.36), unemployment (AOR = 2.73; 95% CI: 1.29, 5.78) or engaged in income-generating roles (AOR = 2.38; 95% CI: (1.23, 4.58) compared to those in non-income generating roles like housewives and students, smoking (AOR = 5.24; 95% CI: 1.73, 15.91), high blood pressure (AOR = 2.04; 95% CI: 1.30, 3.21), only one or ≥ 2 stressful life events (AORs = 1.60 and 1.65; 95% CIs: 1.03, 2.47 and 1.05, 2.61, respectively), and family history of AUD (AOR = 4.04; 95% CI: 2.09, 7.81). For men, smoking (AOR = 5.29; 95% CI: 1.66, 16.81), high blood pressure (AOR = 2.33; 95% CI: 1.39, 3.90), ≥ 2 stressful events (AOR = 1.71; 95% CI: 1.04, 2.82), and family history of AUD (AOR = 4.10; 95% CI: 1.90, 8.84) were associated with greater odds of AUD. For women, being 25-34 years compared to >35 years old (AOR = 8.88; 95% CI: 1.56, 50.63), being divorced (compared to married) (AOR = 5.72 95% CI: 1.27, 25.72) were associated with greater odds of AUD, as were only one stressful life event (AOR = 4.05; 95% CI: 1.14, 14.36), and family history of AUD (AOR = 10.98; 95% CI: 1.69, 71.14).

Conclusion:

Conclusions: AUD prevalence was high in this sample, significantly higher among men compared to women. Our study highlights the need to implement public health interventions that target risk factors for AUD in Ethiopia. Findings also highlight the need for selective AUD prevention interventions that target individuals with a family history of AUD or exposure to stressful life events.

Keywords:

Alcohol Use Disorder, Substance-Related Disorders, Alcohol Epidemiology, Ethiopia, Africa, Lower-income Country

Abs. 30

30. Exploring Digital Innovations and Artificial Intelligence in Advancing the One Health Approach: A Systematic Review and Meta-Analysis. *Derbabaw Fentie*

Background:

The One Health approach underscores the interconnection between human, animal, and environmental health. With the increasing threats of zoonotic disease outbreaks, antimicrobial resistance (AMR), and climate-related health risks, Artificial Intelligence (AI) and digital innovations have emerged as transformative tools. These technologies are revolutionizing disease surveillance, early warning systems, and predictive modeling, yet global synthesis on their effectiveness within the One Health framework remains limited. Therefore, this study aims to explore and synthesize existing evidence on the applications, effectiveness, and challenges of AI and digital innovations in advancing One Health outcomes through a systematic review and meta-analysis.

Objective and Methodology:

This study therefore aims to: (i) identify AI and digital tools applied in One Health; (ii) assess their effectiveness in disease surveillance, diagnostics, and AMR prediction; (iii) examine barriers and enablers to adoption; and (iv) provide evidence-based recommendations for integrating these technologies into One Health strategies. A systematic review and meta-analysis were conducted in accordance with PRISMA guidelines. Peer-reviewed publications from 2010 to 2025 were retrieved from PubMed, Scopus, and Web of Science databases using defined search terms related to “One Health,” “Artificial Intelligence,” and “Digital Innovations.” Studies were screened, coded, and analyzed both quantitatively and qualitatively. A random-effects model was applied to determine the pooled performance metrics of AI-assisted interventions compared to conventional approaches.

Results:

As the findings revealed, 120 of 1,542 studies met inclusion criteria, and 40 were included in the meta-analysis. AI-enhanced disease surveillance improved prediction accuracy by 43%. Machine learning applications for AMR prediction achieved pooled accuracy of 75% (AUC \approx 0.72), while diagnostic AI models for infectious diseases, including COVID-19 and avian influenza, demonstrated sensitivity 0.82,

specificity 0.89, and AUROC \approx 0.92. Digital platforms and IoT systems enhanced real-time data sharing and environmental monitoring. Key barriers included limited infrastructure, poor data interoperability, ethical concerns, and low technical capacity, whereas enablers included interdisciplinary collaboration, institutional support, and AI training.

Conclusion:

AI and digital technologies are reshaping the One Health paradigm by enhancing disease prediction, environmental surveillance, and integrated data-driven decision-making. To harness their full potential, countries must strengthen ethical AI governance, invest in digital infrastructure, and promote interdisciplinary collaboration. These innovations hold promise for achieving global health security and sustainable ecosystem management.

Abs. 31

31. Digital Health Literacy among Pregnant Women in Jimma City: Evidence from a Convergent Parallel Mixed-Methods Study. *Bekelu Teka Worku*

Background:

Digital health literacy (DHL) is the extension of health literacy in the context of technology. It is a potential transformative tool in modern healthcare and plays a vital role in improving maternal health service accessibility, women's health outcomes, and the well-being of newborns, contributing to reducing intergenerational health problems.

Objective and Methodology:

This study aimed to assess the status of digital health literacy and to explore pregnant women's knowledge and experiences with health technology. This study applied a convergent mixed-methods study to examine the DHL status and disparities among 317 pregnant women in Jimma City, Ethiopia. The participants were selected from the updated City's health extension workers' registration logbook using a random number table for the quantitative data and purposively for qualitative data. The quantitative data were collected using Kobo Toolbox and analysed using R. Qualitative data were analysed using NVivo.

Results:

The study reveals stark inequities in access to and utilization of digital health technologies. The analysis result shows that only 42% of the study participants possessed basic DHL competencies. The machine learning models identified three key structural barriers, which are educational attainment (mean Gini decrease 7.8), wealth status (5.9), and first pregnancy at an earlier age (5.7). Additionally, the qualitative results indicated the presence of misconceptions among the women. The data showed many women overlooked the benefits of digital health, as they perceived traditional care (e.g., hygiene practice and antenatal counselling) from health professionals was sufficient. Besides, stakeholder support was notably absent, with minimal DHL-related information dissemination for the women. Participants suggested tailored economic and educational interventions for women, along with partner involvement, to improve technology adoption in the area.

Conclusion:

The data highlights the urgent need for policy-driven strategies integrating short-term training and long-term structural interventions to improve DHL for women in low-resource settings.

Keywords:

Digital health, digital health literacy, health technology, pregnancy, low-income country

32. Forecasting the Incidence of Leishmaniasis in Ethiopia: A Contextual Analysis of Conflict and Health Insecurity Using GBD 2021 Data. *Jenberu Mekurianew Kelkay***Background:**

Kala-azar, or visceral leishmaniasis, is fatal vector-borne diseases without timely treatment. East Africa accounts for nearly 45% of global VL cases, with Ethiopia among the most affected countries. Despite WHO targets to reduce case fatality to below 1% by 2030, Ethiopia continues to face high mortality and poor treatment outcomes, Worsened by limited resources.

Objective and Methodology:

This analysis forecasts VL trends and provides to guide combined interventions supporting Ethiopia's progress toward the Sustainable Development Goals. This study employed secondary data analysis from

the Global Burden of Disease (GBD) database (1990-2021) to forecast visceral leishmaniasis incidence in Ethiopia. LSTM-based models, including multistep LSTM, hybrid ARIMA-LSTM and Transformer approaches, were developed in TensorFlow, while ARIMA models were constructed using the statsmodels and pmdarima libraries in Python. Data stationarity was tested at a 0.05 significance level. Model performance was assessed using Root Mean Squared Error, Mean Absolute Percentage Error, and Symmetric Mean Absolute Percentage Error. The best-performing model then applied to forecast VL incidence for the period 2021-2030.

Results:

According to GBD data, the incidence of Leishmaniasis in Ethiopia shows a long term downward trend, decreasing from 768.091 cases per 100,000 in 1990 to 86.820 by 2021. The analysis result revealed that Transformer model outperformed all achieving MAE:9.55%, RMSE:10.075, MAPE:12.78%, and sMAPE:13.04%. The incidence of Leishmaniasis in Ethiopia is projected to decline slightly through 2030, according to Transformer model. The forecast estimates that the Leishmaniasis incidence will be decreasing 84.197783 cases per 100,000 by 2030.

Conclusion:

Overall, the Transformer model demonstrated superior predictive performance. The forecasts indicate a continued decline in incidence; however, at the current trajectory, Ethiopia is projected to fall short of the WHO NTD Roadmap's ambitious target of a 60% reduction by 2030. Enhancing integrated case management, scaling up targeted mass screening in high-burden regions like Amhara and Tigray, and improving access to diagnosis and treatment are essential. Furthermore, increased funding, strengthened health systems resilient to disruptions, and enhanced national and regional surveillance are crucial to eliminating leishmaniasis as a public health problem.

Keywords:

Forecast, Machine learning, Deep learning, Leishmaniasis, Ethiopia

Abs. 33

33. Predicting Determinants of Early Discharge in Health Facility after Birth in East Africa. A Machine Learning Approach. *Geleta Nenko Dube*

Background:

Complications in postpartum period are the leading causes of death for mothers in sub-Saharan Africa. In low- and middle-income countries, many women receive little care from the time of delivery until they are discharged from the hospital, and the risk of death is higher because of short hospital stay.

Objective and Methodology:

This study was aimed to identify determinants of early discharge in health facility after birth in ten east African countries using machine learning algorithm. Method: Secondary data analysis from ten recent demographic health survey of east African countries was performed. For our analysis, a weighted sample of 60,533 was included. Six supervised machine learning algorithms such as logistic regression, random forest, K nearest neighbor, extreme gradient Boost, Decision tree, and AdaBoost were trained and tested. Furthermore, association rule mining was employed to identify significant relationship of predictors with early discharge in health facility after birth in African country.

Results:

The random forest classifier was the top model to predict determinants of early discharge from health facility after birth with accuracy of 73%, recall of 71%, precision of 77%, F1-score of 74% and area under the curve of 82%. The top model showed that, mode of delivery, assistant during delivery, household wealth status, health insurance coverage, marital status and distance to health facility were the top predicting factors of early discharge from health facility after birth in East Africa.

Conclusion:

The random forest algorithm was selected as best performing algorithm. The top predictors were identified by using random forest feature importance. These findings have important implications for public health initiatives in East African countries, as ML algorithms can be used to build emphasized strategy for tailored care plans and discharge strategies for women delivered in healthcare institutions. Thus, the

visualization of specific feature importance as well as the interpretation of feature importance, can help policymakers and program managers in the relevant study area intuitively grasp the decision-making process for mother and child care during delivery and postpartum related services.

Keywords:

Early discharge, Machine learning, Association rule mining, Length of stay, East Africa

WASH, Climate Change and Environmental Health

Abs. 34

34. Electronic Waste Management Practice, Barriers and Potential Challenges among Different Institutions in Gedeo Zone South Ethiopia: Explanatory Sequential Mixed Methods Study.
Mekonnen Birhanie Aregu

Background:

Background: One of the most rapidly growing types of solid waste globally is electronic waste (E-waste). Improper management of E-waste poses significant negative impacts on environment and human health. Nevertheless, sustainable management of E-waste can mitigate these adverse effects.

Objective and Methodology:

Objective: the aim of this study was to assess electronic waste management practice and its potential challenges among various institutions in Gedeo zone. Method: An explanatory sequential mixed method study design was conducted, involving 87 governmental institutions. In-depth interviews were conducted with 9 key informants from selected institutions. Data collection methods included questionnaires, in-depth interview guide, and observational checklists. Descriptive statistical analysis was performed on the quantitative data, while verbatim transcription and the development of a code book were done for qualitative phase. The coding and thematic analysis were conducted using Open-code 4.03 software.

Results:

Result: Large numbers of E-wastes were discovered, with 3,321 and 810 units identified from offices and healthcare facilities, encompassing 43 and 17 different types of E-waste, respectively. The average

lifespan of newly purchased items was 4.92 years in offices, while second-hand items lasted an average of 3.54 years. In the healthcare facilities, newly purchased items had an average lifespan of 4.36 years compared to 3.65 years for second-hand items. Most E-waste items such as desktops, laptops, and printers were found to be stored 100% within their workplace. Furthermore, almost all institutions lacked a designated responsible entity, adequate budget allocation, and established protocols for e-waste management. Participants expressed a lack of knowledge and awareness regarding e-waste management, with poor handling practices observed across institutions, including inadequate storage, reuse, and recycling methods, and improper disposal of E-wastes. Participants highlighted the lack of enabling factors for E-waste management as a significant challenge in implementing proper e-waste management practices.

Conclusion:

Conclusion: The E-waste management practices of various institutions in Gedeo zone are poor due to a combination of factors and barriers preventing proper practice. Therefore, it is imperative for the local government to enforce strict adherence to the national regulations, enhance workers' knowledge and awareness, and facilitate the necessary resources for the proper management of E-waste. Additionally, further research on the economic evaluation of E-wastes is highly recommended.

Keywords:

Electronic waste, management practice, Barriers, challenges

Abs. 35

35. Bacteriological Quality, Hygiene Practices, and Supply Chain Challenges of Raw Meat in Dilla Town, South Ethiopia: An Explanatory Sequential Mixed-Methods Study. *Mekonnen Birhanie Aregu*

Background:

Foodborne infections can spread from abattoirs, transportation, and retail outlets. Therefore, implementing effective hygienic measures in the supply chain is crucial to ensuring the quality and safety of meat and safeguarding public health.

Objective and Methodology:

The aim of this study was to assess the bacteriological quality of raw meat, the hygienic practices and the potential challenges of meat supply chain in Dilla town. Method: An explanatory sequential mixed-method approach was used. A total of 97 swab samples including raw meat from abattoir, transportation service and retail shops were collected. The swab samples were taken from 10cm² of meat contacting surface using sterile, buffered peptone water moistened cotton swabs and investigated in Dilla University's medical laboratory department in line with standard operating procedure. 13 key informants were included in the study and thematic analysis was conducted using Open-code 4.03 software.

Results:

35.71%, 57.14%, and 49.09% of swab samples from abattoir, transportation service, and retail shops were positive for pathogenic microorganisms, with a total of nearly half (49.48%) testing positive. S.typhi was the most prevalent organism followed by S.aureus, and E.coli whereas L.monocytogen was lowest isolate. The study highlighted participants' basic understanding of meat handling but lacked in-depth knowledge. Poor personal and environmental hygiene linked to limited access to hygiene facilities. Moreover, participants identified environmental, administrative, and regulatory challenges as potential obstacles.

Conclusion:

Bacteriological contamination of the meat supply chain is significantly high as a result of inadequate knowledge, poor personal and environmental hygiene practices, and shortcomings in the regulatory system. Additionally, challenges pertaining to administrative, environmental, and regulatory aspects have impeded efforts to improve hygiene practices within the supply chain.

Keywords:

Bacteriological quality, hygiene practice, raw meat, supply chain, potential challenge

Nutrition and Food Security

Abs. 36

36. Effect of High-Intensity Motor Learning and Dietary Supplementation on Muscular Fitness and Motor Skills of 5-7-Year-Old Children with Moderate Acute Malnutrition in Jimma Town, South-West, Ethiopia: A Cluster-Randomized Controlled Trial. *Melese Sinaga Teshome*

Background:

Background: Malnutrition has extensive consequences, affecting multiple levels of functioning, including motor skill impairments. However, current interventions have mainly focused on dietary treatment, often neglecting motor impairments and relying solely on clinical and anthropometric indicators to assess treatment response. This study aims to bridge this gap by examining the combined effect of Ready-to-Use Supplementary Food (RUSF) and high-intensity motor learning (HiML) on motor skill-related physical fitness in children with moderate thinness (MT).

Objective and Methodology:

Methods: A cluster randomized controlled trial was conducted among children 5-7 years old with MT in Jimma Town. A total of 69 children were randomized into three intervention arms: RUSF (n=23), RUSF+HiML (n=25), and no intervention (n=21). The HiML training was applied for 12 weeks, and RUSF was distributed daily for 12 weeks. HiML was given daily (1h/day, 5 days/week). The primary outcome was motor skill-related physical fitness assessed at baseline and endline using the Performance and Fitness test battery (PERF-FIT). The changes from baseline to end-line measurements were calculated as differences, and the mean difference in these changes/differences (DID) was then computed as the outcome measure. AN(C)OVA to directly investigate differences between groups. Statistical significance was declared at p-value ≤ 0.05 .

Results:

Results: There was a significantly greater and comparable improvement in both the RUSF and RUSF+HiML groups compared to the control group on the 'stepping' item (p<0.001), the 'side jump' item (p<0.001), the 'standing long jump' (p<0.001), and the 'jumping and hopping' total (p=0.005). The

RUSF+HiML group showed significantly greater improvements on the ‘bounce and catch’ ($p=0.001$) and ‘throw and catch’ ($p<0.001$) items compared to the RUSF group, which, in turn, demonstrated greater improvement than the control group on both items ($p<0.01$).

Conclusion:

Conclusion: A 12-week combination of RUSF + HiML was proven to be safe in children with MT and caused clear improvements in motor skill-related physical fitness. When the children received RUSF with HiML training similar gains in stepping, side jump, standing long jump, and jumping and hopping were observed, except for the ball skills where the HiML training group performed better.

Keywords:

Moderate thinness, PERF-FIT, motor skills, school children, muscular fitness, high-intensity motor learning

Abs. 37

37. Severity of Wasting Among Children Aged 6–59 Months in East Africa: A Multilevel Proportional Odds Analysis of DHS Data from 2012-2022. Masrie Getnet Abate

Background:

Malnutrition is a pathological condition resulting from deficiencies, excesses, or imbalances in a person’s intake of energy and nutrients. It is particularly critical during the first 1,000 days post-conception, a period that significantly influences a child's long-term physical growth, cognitive development, immune function, and overall survival (1). Among the various forms of malnutrition, childhood undernutrition remains a major global public health challenge, especially in low- and middle-income countries (2). Globally, an estimated 148 million children under five are stunted, 45 million are wasted, and 37 million are overweight. Undernutrition contributes to approximately 45% of all deaths among children under-five, with the burden heavily concentrated in sub-Saharan Africa and South Asia (1). One of the most severe forms of acute malnutrition is wasting, which is defined by low weight-for-height and results primarily from recent and severe weight loss, usually associated with inadequate dietary intake and/or recent illness. The World Health Organization (WHO) classifies wasting as moderate wasting weight-for-height Z-score between -2 and -3 standard deviations below the median and Severe wasting: weight-for-height Z-score <

-3 standard deviations below the median, or the presence of nutritional oedema (3). Wasting poses an immediate threat to child survival and is a direct cause of mortality in children aged 6–59 months (4, 5). In 2022, an estimated 6.8% of children under five were affected by wasting, including 13.6 million with severe wasting. More than three-quarters of children suffering from severe wasting live in Asia, while 22% reside in Africa, where the prevalence was 5.8% (6). Within Africa, the prevalence of wasting varies significantly by region: Central Africa 5.6%, Eastern Africa 5.0%, Northern Africa 6.3%, Southern Africa 3.5 %, and Western Africa 6.7% (6). A 2025 study estimated the overall prevalence of wasting in Africa to be 7.16%, exceeding the WHO's global target of less than 5% by 2025 (7). Similarly, pooled data from demographic and health surveys (2007–2022) showed that the prevalence of wasting among children aged 6–59 months in Africa was 7.09%, with 2.12% experiencing severe wasting (8). Although several national studies have investigated wasting in East African countries such as, Ethiopia 7.14% (9), Kenya 5% (10), Uganda 4% (11), Tanzania 3% (12) these estimates are based on individual country data. Existing literature has identified various risk factors associated with wasting, including: child sex, recent episodes of diarrhea, maternal alcohol use, number of children in the household, female-headed households, exclusive breastfeeding, maternal literacy, and rural residence (7, 12-14). However, the extent to which these factors are consistently associated with wasting across East African countries has not been thoroughly assessed at a regional level. Most previous research has examined undernutrition more broadly or focused on the co-occurrence of wasting and stunting. As a result, the specific burden and associated factors of wasting in East Africa remain inadequately understood. To address this gap, regionally representative data are needed to inform targeted intervention. The Demographic and Health Surveys (DHS) provide a reliable and standardized source of nationally representative data on child health and nutrition. These datasets are well-suited for regional analyses because of their large sample sizes, consistent methodology across countries, and inclusion of key child-level and household-level variables. This study leverages DHS data to address the evidence gap by estimating the pooled prevalence of wasting and its associated factors among children aged 6 -59 months in East Africa. Therefore, this study aims to estimate the pooled prevalence of wasting and identify the associated factors among children aged 6–59 months in East Africa, using DHS data. The findings will inform the development of coordinated, evidence-based public health strategies to reduce wasting and improve child survival outcomes in the region. In addition, this study supports the World Health Organization global target to reduce childhood wasting to less than 5% by 2025.

Objective and Methodology:

Objective: The primary objective of this study is to assess the severity level of wasting and identify key contributing factors at both the individual- and community-levels among children aged 6-59 months in East Africa. **Methods:** The study used available data from a standard Demographic and Health Survey (DHS) collected between 2012-2022, across East African countries. A total of 42, 413 children aged from 6-59 months were included in this study. A multilevel proportional odds model was employed for analysis, after checking it's assumption. In the final model, adjusted odds ratios with 95% confidence intervals were reported to highlights statistically significant associations ($p < 0.05$) between the severity of wasting and its contributing factors at both the individual- and community-level. Sampling weights were applied to ensure the representativeness at regional and national levels.

Results:

Results: Overall, in East Africa, 7.2% of children aged 6-59 months are affected by wasting. Among them, 5.7% experience moderate wasting (MAM), while 1.5% are affected by severe wasting (SAM). Within the region a higher prevalence of wasting was recorded in Ethiopia (11.7%), followed closely by Comoros (10.8%), and Madagascar (7.7%). In contrast, Rwanda reported a notably low wasting prevalence of 1.1%, followed by Uganda with a prevalence of 3.5%. The higher severity of wasting was linked with several individual-level factors such as children whose mother had not visited health facility in the past 12 months, mother who were not currently employed, mothers who were underweight, small size of child during birth, child who had recent fever, larger number of under-five children in the households, improved toilet facility in the households and children coming from poor households. At the community level, higher severity was associated low maternal education at the community-level. In contrast, lower severity of wasting was connected to individual factors like child being female, overweight mother, as well as the community factor of living in rural areas.

Conclusion:

Conclusion: The study underscores the multifaceted and interconnected nature of individual and community-level factors contributing to the severity of wasting among children in East Africa. Interventions aiming to combat wasting on maternal empowerment through education, enhancing maternal and child health services, promoting the health and nutrition programs regionally and nationally,

especially in resource-limited and conflict-affected settings, is essential to reduce intergenerational effect of malnutrition and ensuring the survival and development of children across East Africa.

Keywords:

Keywords: Children, DHS, East-Africa, Wasting, Multilevel Proportional Odds Model.

Abs. 38

38. Animal Source Food Consumption Level and Its Determinant among Pregnant Women in Gamo Zone, South Ethiopia: Using Bayesian Multilevel Mixed Effect Model. Teshale Fikadu Gebabo

Background:

Animal-source foods (ASFs) are rich in both macro- and micronutrients and are excellent sources of essential nutrients that can be difficult to obtain from plant-based foods. They play a significant role in increasing dietary diversity and reducing under nutrition. Despite this, animal source food consumption among pregnant women in Ethiopia remains limited. This study aims to assess the level and determinants of animal source food consumption during pregnancy.

Objective and Methodology:

Community-based cross-sectional study was employed among 638 randomly selected pregnant women in the Arba Minch health and demographic survey sites. Data was collected using interviewer administered structured questionnaire and analyzed using STATA version 17 statistical software. Bayesian multivariable multilevel analysis was employed to determine the predictors of animal source food consumption during pregnancy. The posterior odds ratio (OR) and 95% Bayesian credible intervals (CI) were reported and statistical significance was determined based on the absence of 1.0 in the 95% CI. Bayesian deviance information criterion (DIC) was used to evaluate the goodness-of-fit.

Results:

The levels of animal source food consumption among pregnant women were 30.56% (95% CI: 27.1, 34.3). A higher level of consumption was observed among women who attended secondary school or higher (AOR = 1.65; 95% CI: 1.02–2.70), belonged to households with high socioeconomic status (AOR = 2.99;

95% CI: 1.47–5.43), had better dietary knowledge (AOR = 1.83; 95% CI: 1.50–2.38), were exposed to audiovisual mass media (AOR = 1.89; 95% CI: 1.12–2.99), owned livestock (AOR = 2.21; 95% CI: 1.16–4.08), and had longer birth intervals (AOR = 1.82; 95% CI: 1.02–3.09).

Conclusion:

The level of animal source food consumption during pregnancy is low. Maternal educational status, dietary knowledge, exposure to audio visual mass media, birth interval, household wealth status, and livestock ownership were identified as determinants of animal source food consumption.

Abs. 39

39. Pooled Prevalence of Optimal Complementary Feeding Practice and its Determinants among 6-23 months old children in Ethiopia: A Systematic Review and Meta-analysis. *Mastewal Erango Ersado*

Background:

Optimal complementary feeding practice (OCFP) is essential to meet the nutritional needs of infants and young children (IYC) in the early years of life.

Objective and Methodology:

This systematic review and meta-analysis (SRMA) aimed to determine the pooled prevalence of OCFP and identify its determinants among mothers of children aged 6-23 months in Ethiopia. Six major databases were searched. Twenty-nine observational studies involving 19,600 mother-child pairs were included. The studies were conducted in six regions and one city administration from 2013 to 2024 in Ethiopia. A critical appraisal of the studies was conducted. Data analysis was performed using STATA version 17. Cochran (Q test) and I² test were used to test the heterogeneity of the studies. Publication bias was checked using the funnel plot for asymmetry and Egger's regression test. The random-effects meta-analysis was used to synthesize the data, which exhibited significant heterogeneity.

Results:

The pooled prevalence of OCFP was 24.59% (95% CI: 18.47-30.71). Having repeated contact for antenatal care (ANC) (OR=2.34, 95%CI:1.77-3.10), maternal education of secondary or above (OR=4.84,

95%CI:2.93-7.99), institutional delivery (OR=2.91, 95%CI:1.71-4.94), having postnatal care (PNC) (OR=3.71, 95%CI: 2.7-5.09), maternal knowledge of child feeding practice (OR=5.66, 95%CI:3.75-8.55), receive advice on child feeding practice (OR=5.33, 95%CI:3.03-9.37), age of child 18-23 months (OR=3.38, 95%CI:1.95-5.87) and household food security (OR=3.05, 95%CI:2.62-3.55) were significantly associated with high odds of OCFP.

Conclusion:

The pooled prevalence of OCFP was very low in Ethiopia. This SRMA highlighted a significant association between having ANC, maternal education, place of delivery, PNC follow-up, maternal knowledge, advice on child feeding, child age and household food security and OCFP. Therefore, interventions should focus on improving children's feeding practices through counseling and educating mothers, and engaging households in food security programs.

Keywords:

Optimal Complementary Feeding Practice, infants and young children, Ethiopia

Abs. 40

40. The Ecotourism–Food Security Nexus: Evidence and Policy Implications from Ethiopia.

Shirega Minuye

Background:

Ethiopia's rich ecological diversity and cultural heritage present significant potential for ecotourism to contribute to sustainable development and food security. However, empirical evidence on how community-based ecotourism influences food security outcomes in Ethiopia remains limited. This study investigates the ecotourism–food security nexus in selected ecotourism destinations to understand how ecotourism initiatives affect local food systems and community wellbeing.

Objective and Methodology:

The objective of the study is to explore the ecotourism–food security nexus in selected ecotourism destinations to understand how ecotourism initiatives affect local food systems and community wellbeing. A qualitative research approach was employed, grounded in a systematic review of relevant policy

documents, national development plans, and academic literature. To enrich contextual understanding, the study incorporated key informant interviews with stakeholders from the tourism, agriculture, environmental, and community sectors. Additional insights were obtained through expert consultations and targeted field observations where applicable.

Results:

The findings indicate that ecotourism contributes to food security primarily by diversifying livelihoods, increasing household incomes, and strengthening local food value chains. Initiatives that prioritize local sourcing and the promotion of indigenous food products were associated with improved food access and greater dietary diversity. Conservation oriented ecotourism further supports vital ecosystem services that underpin sustainable food production. Despite these positive contributions, the impact of ecotourism on food security varies across sites. Challenges such as weak institutional coordination, limited community ownership, capacity constraints, and vulnerability to market and climate related shocks were found to limit broader and sustained food security benefits. Sites with strong governance, inclusive participation, and integrated tourism–agriculture strategies demonstrated more consistent positive food security outcomes.

Conclusion:

Ecotourism has the potential to serve as a viable complementary pathway for enhancing food security in Ethiopia. Its effectiveness depends on the integration of ecotourism within broader sustainable food system frameworks and supportive institutional environments.

Global Health Security

Abs. 41

41. Mental Health Factors and Suicidal Ideation among Students in Africa: A Systematic Review and Meta-Analysis. *Anmut Endalkachew Bezie*

Background:

Background: Suicidal ideation is a global public health crisis that needs urgent intervention. Students are vulnerable to suicidal ideation due to their exposure to mental health determinants in academic settings. Despite the growing recognition of suicidal ideation, there remains a lack of robust data that captures its

association with mental health factors among students in Africa. Therefore, this study systematically reviews the association between mental health determinants and suicidal ideation among students in Africa.

Objective and Methodology:

Methods: An extensive search of electronic databases such as PubMed, Google Scholar, Semantic Scholar, HINARI, and Science Direct was employed to identify relevant studies published up to 2025. The preferred PRISMA guidelines were used for reporting items for this systematic review and meta-analysis. To extract data, Microsoft Excel 16 and to analyze STATA 17 software were used. To estimate the pooled association, a random effects model was used. The funnel plot and Egger's regression test were used to assess publication bias, and to evaluate heterogeneity, I^2 test statistics was used.

Results:

Results: A total of 47 studies involving 138,832 students met the inclusion criteria. Students with depression and anxiety were 3.9 and 1.5 times more likely to experience suicidal ideation than those without depression and anxiety, respectively. In addition, suicidal ideation was 1.4, 1.5, and 5.2 times higher odds for alcohol-consuming, lonely, and hopeless students than their counterparts, respectively. Moreover, students who chew khat, smoke cigarettes, cannabis use, and feel sadness had 2.1, 1.5, 1.4, and 1.8 times higher odds of experiencing suicidal ideation than their counterparts, respectively. In this meta-analysis the lowest pooled odds ratio was found between stress and suicidal ideation, while the highest pooled odds ratio was found between hopelessness and suicidal ideation.

Conclusion:

Conclusion: The findings indicate that anxiety, depression, loneliness, hopelessness, sadness, alcohol consumption, khat chewing, cannabis use and cigarette smoking were risk factors for suicidal ideation. Therefore, schools and universities are advised to prioritize mental health in educational settings. Strengthening and improving mental health literacy, early identification of mental health illness, reducing substance use, and providing access to counseling and social support networks are advised.

Keywords:

Suicidal ideation, mental health factors, depression, anxiety, systematic review and meta-analysis, students, Africa

Abs. 42**42. Co-occurrence of Native and Invasive Malaria Vectors in Anthropogenic Habitats in Metehara, Ethiopia: Opportunities for Urban Malaria Control. *Temesgen Ashine Amenu*****Background:**

Local data are essential to understand the threat posed by invasive *Anopheles stephensi* and native malaria vectors on urban malaria transmission in Ethiopia.

Objective and Methodology:

This study investigated key bioecological features of invasive and native malaria vectors in Metehara town, Ethiopia. In parallel with a case-control study assessing the impact of *An. stephensi* on urban malaria transmission, a bioecological assessment was conducted between November 2023 and October 2024. All potential larval breeding habitats were mapped, followed by bimonthly collections of immature and adult mosquitoes from randomly selected locations. Immatures were collected using standard dippers, and adults with CDC light traps, BG Pro traps, and Prokopack aspirators. Adult *Anopheles* were identified morphologically, while species identification of immatures, adult blood-meal analysis, and sporozoite detection were performed via PCR.

Results:

Of 767 potential larval breeding habitats, 98.3% (n = 754) were anthropogenic, with the majority (95.2%, n = 730) accessible for oviposition, either fully (73.1%, n = 551) or partially (23.7%, n = 179). More than half were water storage containers for human consumption (37.3%, n = 281) or associated with construction (20.8%, n = 157), while abandoned containers, including discarded tyres, accounted for 22.3% (n = 168). Among anthropogenic habitats positive for *Anopheles* immatures (55.3%, n = 417), one-third contained both *An. stephensi* and *An. arabiensis*. Habitat positivity for *An. arabiensis* showed significant seasonal variation (likelihood ratio, LR = 46.96, P < 0.01), whereas *An. stephensi* remained

stable (LR = 13.06, P = 0.11). Of 2078 adult catches, *An. arabiensis* was the most abundant species (63.7%, n = 1323), followed by *An. pharoensis* (26.4%, n = 549). The human blood index was highest in *An. arabiensis* (21.8%), compared with *An. pharoensis* (8.3%) and *An. stephensi* (1.9%). Sporozoite rate was highest in *An. pharoensis* (4.2%, 23/548), followed by *An. arabiensis* (0.4%, 5/1321), while no *An. stephensi* tested positive (0/173).

Conclusion:

Most breeding habitats were anthropogenic, supporting both native and invasive vectors. *Anopheles arabiensis* exhibited seasonal variation, whereas *An. stephensi* remained stable. Integrated vector control targeting anthropogenic larval habitats is recommended. Identification of *An. pharoensis* from larval pools, given its high sporozoite rate, is critical to guide urban malaria control.

Keywords:

Anopheles stephensi *Anopheles arabiensis* *Anopheles pharoensis* Co-occurrence Blood meal Sporozoite rate

Abs. 43

43. Spatial Distribution and Vaccination Status of Measles Cases in Ethiopia: A Systematic Review and Meta-Analysis. Mengistie Kassahun Tariku

Background:

Measles remains a significant public health problem in Ethiopia, contributing to high childhood morbidity and mortality. Despite repeated vaccination campaigns, the country continues to experience recurrent outbreaks and persistent immunity gaps. Evidence on the national geographic distribution of measles cases and vaccination status is limited.

Objective and Methodology:

This study aimed to assess the geographic distribution of measles cases across Ethiopian regions and estimate the pooled proportions of vaccination status among reported cases. A systematic review and meta-analysis were carried out in Ethiopia following Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 guidelines. PubMed, Science Direct, African Journals Online, and Google

Scholar were searched from January 1 to April 30, 2025, without restriction on publication year. Two reviewers independently extracted data using a standardized Excel sheet. Geospatial mapping was conducted using ArcGIS 10.8, and meta-analyses were performed in STATA 17. Study quality was evaluated using the Joanna Briggs Institute checklist. Pooled proportions were estimated using a random-effects model, and heterogeneity was assessed with the I^2 statistic. Subgroup analyses by region, study design, and investigation type were conducted. Publication bias was examined using funnel plots and Egger's test.

Results:

Forty-three studies including 31,731 measles cases were analyzed. Oromia (39.2%) and Amhara (34.6%) contributed most cases, while Benishangul Gumuz, Dire Dawa, Gambella, and Harari had no study found. The pooled proportion of vaccinated cases was 29.9%, unvaccinated (54.2%), unknown vaccination status (24.7%), and ineligible (8.9%). Somali had the highest unvaccinated proportion (74.3%), while Addis Ababa had the highest unknown vaccination status (53.7%).

Conclusion:

Measles cases in Ethiopia were concentrated primarily in Oromia and Amhara, indicating substantial gaps in immunization and surveillance. Strengthening routine vaccination, improving data quality, and targeting low-coverage regions are essential for achieving national measles control and elimination goals.

Keywords:

Spatial Distribution, Vaccination Status, Measles Cases, Ethiopia

Abs. 44

44. A Comparative Population-Based Study of Diabetes Mellitus and Its Risk Factors among Adults in Southwest Ethiopia. *Birhanu Yadecha Dibaba*

Background:

Background: Non-communicable diseases have negative human, social, and economic impacts on all countries, but they have the most negative impact on vulnerable and poorer people. Early detection and

treatment of diabetes mellitus are important for reducing the incidence of acute and long-term complications that affect patients' quality of life and survival.

Objective and Methodology:

Objective: The aim of this study was to identify the prevalence of diabetes and its risk factors among urban and rural adults in the southwest shoa zone of Central Ethiopia. **Methods and Materials:** A cross-sectional population-based survey was conducted among 1440 study participants in the southwest shoa zone from May 1, 2021, to July 30, 2021. A multistage systematic sampling technique was used to select study participants from urban and rural settings. Data were gathered via interviewer-administered questionnaires, and measurements of blood pressure, blood glucose level, waist circumference, hip circumference, and height were taken via a conventional procedure by trained health extension workers. Epi Info 7 and STATA 13 were used for data entry and analysis, respectively. In multivariable logistic regression, variables with a P value of 0.05 or less were deemed statistically significant.

Results:

Results: The prevalence of diabetes mellitus was 6.99%. Diabetes was more common in urban areas than in rural areas (9.21% vs 3.99%). In both the urban and rural populations, the proportion of women with DM was greater. Among the urban population, female sex (AOR=2.5, 95% CI: 1.186, 5.275), private work (AOR=4.7, 95% CI: 1.385, 15.790), a house wife (AOR = 4.3, 95% CI: 1.258, 14.740), a family history of DM (AOR = 3.2, 95% CI: 1.258, 7.981), current smoking (AOR = 3.7, 95% CI: 1.592, 8.614), ever smoking (AOR = 6.2, 95% CI: 2.939, 13.149), and current alcohol use were positively associated with diabetes. In rural areas, current smoking and hypertension (AOR = 3.5, 95% CI: 1.449, 8.391) were significantly associated with diabetes.

Conclusion:

Conclusion: This study revealed a greater prevalence of overt and hidden diabetes. A community-based approach to awareness creation and screening programs should be devised to identify and avert the long-term consequences of the disease early.

Keywords:

Diabetes, prediabetic, noncommunicable disease, Ethiopia

Abs. 45

45. Risk Factors for Early Mortality in HIV-Positive Adults on Antiretroviral Therapy: Insights from Health Facility-Based HIV Cohort in Ethiopia. *Birhanu Yadecha Dibaba*

Background:

Improved access to antiretroviral therapy is linked to higher survival. Since rapid expansion of ART program in Ethiopia, the number of AIDS death has shown dramatical decline. However, survival time among people with HIV who started ART is variable, predictors vary for this mortality variation according to the existing studies, and there are discrepancies in the results of those studies.

Objective and Methodology:

Objective: To determine time to death and predictors of mortality among PLWH on ART treatment at health facilities in Woliso district, Southwest Shoa Zone, Ethiopia. Methods: A historical cohort study involving People living with HIV who are on ART was carried out from January 01, 2018 to December 30, 2022. Simple random sampling technique was used. Data were collected by nurses using a structured abstraction tool with ODK, and STATA version 13 was utilized for data analysis. Kaplan-Meier was used to estimate survival time, and log rank tests were used to compare survival curves. We employed multivariable Cox PH regression analysis to identify the factors that predicted survival time. The Cox PH assumption and goodness of fit were examined using the Cox-Snell residual plot, log log test, and graphical evaluation. The data were presented using tables, graphs, and statements.

Results:

Result: The incidence density of mortality was 5.1 per 100 person years (95%CI: 4.01–6.50). The median time to death was 21 months. Marital status: being divorced (AHR: 6.34 95% CI: 2.05, 19.65), WHO clinical stage III and IV (AHR: 2.92 95% CI: 3.12, 8.27), ART adherence: fair (AHR: 5.48 95% CI: 2.37, 12.66), and poor (AHR: 3.50 95% CI: 1.72, 7.09) were predictors of mortality.

Conclusion:

Conclusions: This study found high incidence of mortality. Marital status, WHO clinical stage and ART adherence were predictors of mortality. Therefore, early enrolment of patients on HIV care and treatment and good drug adherence is very crucial to improve patients' survival.

Keywords:

Time to event, ART, Survival time, predictors, Woliso district

Abs. 46**46. Non-fatal Health Outcomes of Low Back Pain among People Aged 55 Years and above in Eastern Sub-Saharan Africa, from 1990 to 2023. *Yohannes Addisu Wondimagegne*****Background:**

Low back pain is a debilitating and prevalent musculoskeletal condition. However, there is a paucity of information that describes the distribution of health outcomes due to low back pain in resource-limited settings. This study was aimed to estimate the prevalence and incidence of low back pain and the years lived with disability among individuals aged 55 years and above in the Eastern Sub-Saharan African region (ESSA) from 1990 to 2023.

Objective and Methodology:

This study was objected to estimate the prevalence and incidence of low back pain and the years lived with disability among individuals aged 55 years and above in the Eastern Sub-Saharan African region (ESSA) from 1990 to 2023. Methods: This study used data, methods, and tools of the Global Burden of Diseases 2023 study. Disease modeling with Bayesian meta-region (DisMod-MR 2.1) was used to estimate prevalence, incidence, and years lived with disability associated with low back pain. The spatiotemporal Gaussian process regression (ST-GPR) was used to adjust for spatial and temporal variations. Significant trend change was declared when the 95% uncertainty interval did not cross the zero value.

Results:

In 2023, the estimated prevalence of low back pain among individuals aged 55 years and older in ESSA was approximately 593,970 cases, with a 95% uncertainty interval (UI) ranging from 493,058 to 704,942, translating to a prevalence rate of about 19,389 per 100,000 individuals (95% UI: 16,095 to 23,006). The estimated incidence of low back pain in this age group was around 239,565 cases, with a 95% UI of 199,193 to 286,672, resulting in an incidence rate of approximately 7,820 per 100,000 (95% UI: 6,502 to 9,358). Additionally, the estimated years lived with disability (YLDs) due to low back pain in individuals aged 55 and older was approximately 650,059 cases, with a 95% UI ranging from 439,326 to 895,267, equating to about 2,122 YLDs per 100,000 individuals (95% UI: 1,434 to 2,922).

Conclusion:

The findings indicate a significant burden of low back pain among individuals aged 55 years and older in the ESSA region. The data highlights that prevalence and incidence rates are notably higher in the older age categories, particularly among those aged 90 and above. Despite these concerning trends in specific age groups, the overall metrics of prevalence, incidence, and years lived with disability have remained relatively stable from 1990 to 2023.

Keywords:

Eastern Sub-Saharan Africa, Prevalence, Incidence, Low back pain, and Years lived with disability.