Geospatial Analysis of Access to Emergency Obstetric Care for Civilian and Military Populations in the US: Update

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INTRODUCTION

Maternity Care Deserts

- 35% of US counties were maternity care deserts in 2024
  - No obstetric clinician or birthing facility
  - Home to 2.3 million women of reproductive age
- Residence in maternity care deserts increases risk of maternal morbidity and mortality
  - Long travel times required to reach care
  - Limited access to specialists, higher levels of care

Emergency Obstetric Care in the MHS

- In 2021, 58% of military treatment facilities (MTFs) providing emergency cesarean delivery were in areas with limited access to a civilian hospital with emergency cesarean delivery services
- Recent Military Health System (MHS) reforms may affect access to emergency obstetric care
  - "Right-sizing" MTFs to prioritize active duty & operational primary care
  - Closing specialty & inpatient services at smaller MTFs

U.S. Army, April 2023. Photo: Ron Mooney

METHODS

Study Design & Population

- Cross-sectional geospatial analysis using data from 2024
- Aim: to identify number of female TRICARE beneficiaries & civilians with timely access to emergency obstetric care
- Population using 2024 American Community Survey (ACS) data
  - Female civilians & TRICARE beneficiaries
  - Ages < 65
  - Residing in the continental US (residence defined by county)

Access to Emergency Obstetric Care

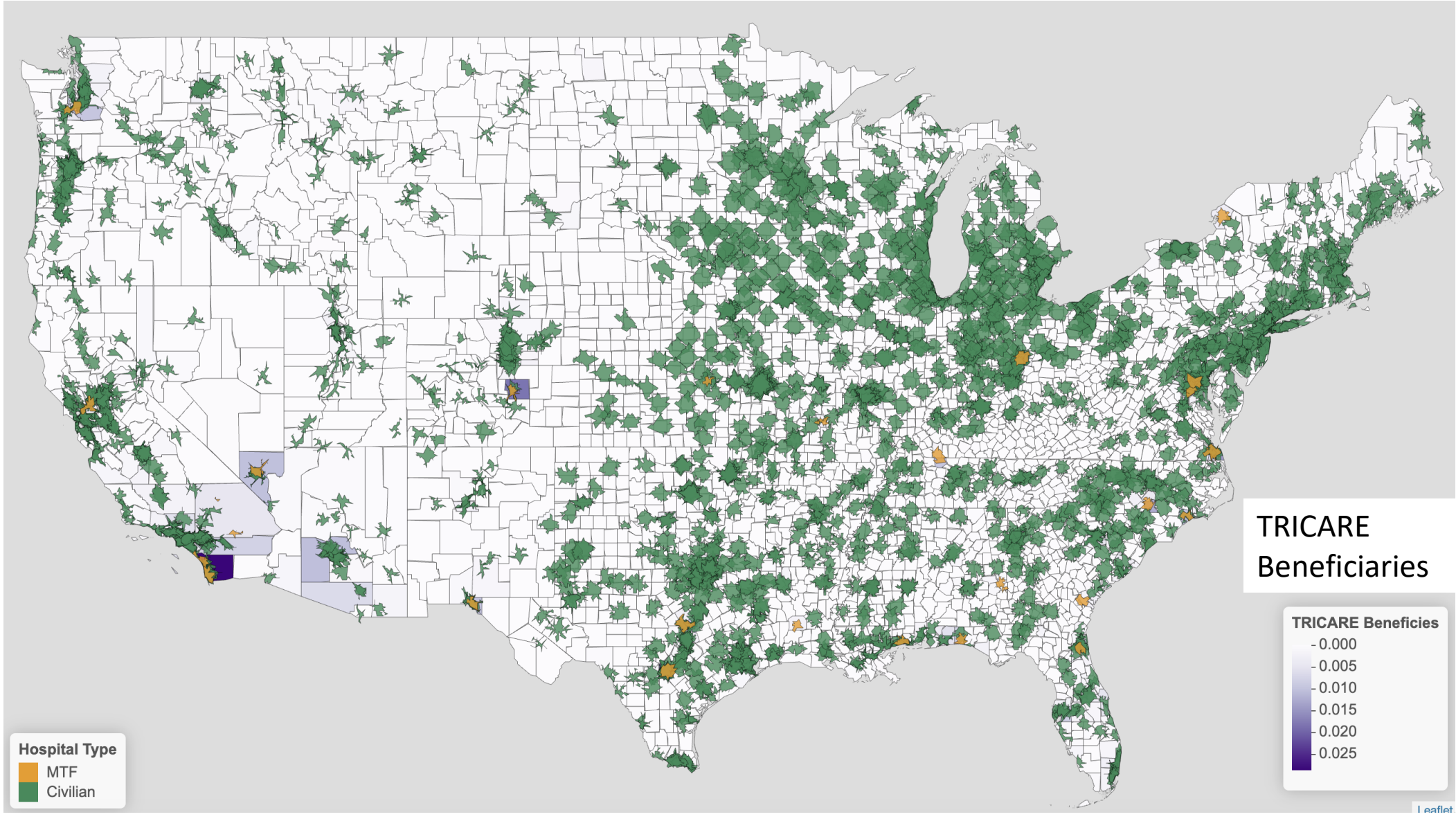
- Timely access defined as 30-minute drive to a hospital with emergency obstetric services
  - Based on historical “30-minute rule” for decision-to-incision time for emergency cesarean
  - Calculated for each area at 10:00 AM
- Civilian hospitals providing emergency obstetric care identified from American Hospital Association 2023 Annual Survey
  - Defined as providing obstetric care and emergency care, having 1 operating room, 1 surgical admission in the previous year
- List of MTFs obtained with same criteria + being in operation in 2024
- 27 MTFs & 1,782 civilian hospitals identified

Statistical Analysis

- R v4.5.1 used to identify women living within a 30-minute drive of identified hospitals.
- Counts of study population calculated and stratified by hospital type
- Population density maps created
  - Residences assumed to be equally distributed throughout the county
  - Merged all data by county and hospital type to create single surfaces by county
  - Accounting for overlaps ensured individuals were not counted more than once
- Area overlap of driving surface for each zip code identified for each hospital, overlaps identified by mapping overlay of 30-minute drive times for each hospital
  - Added layers of women living within a 30-minute drive to military and civilian hospitals

RESULTS

Hospitals with Emergency Obstetric Services



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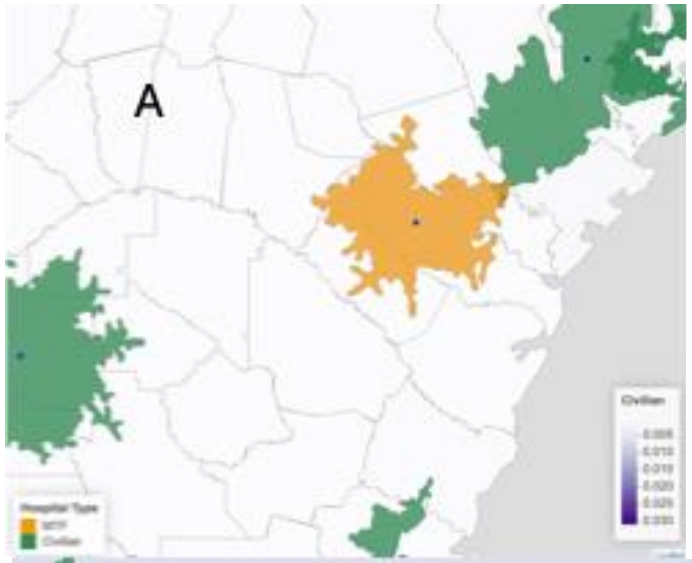
Access by Hospital Type

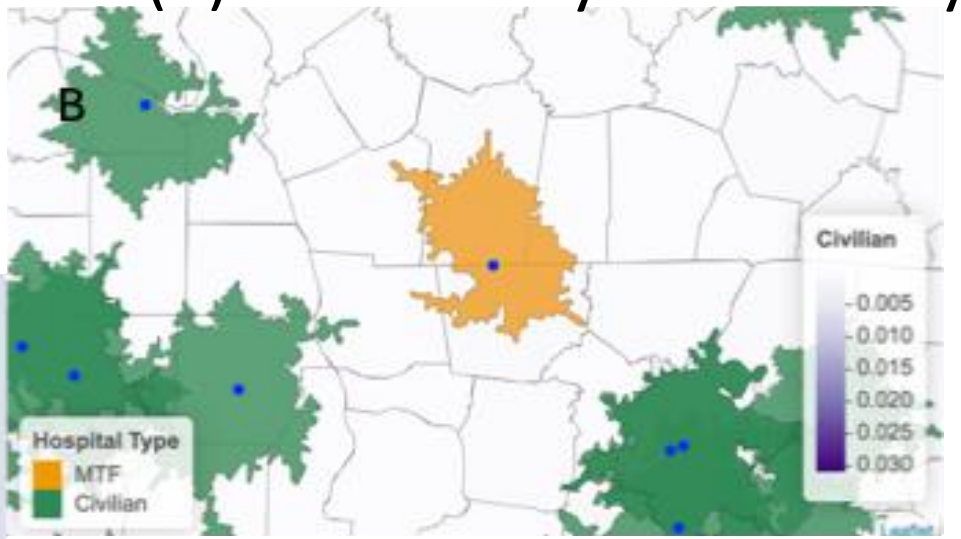
- Many women do not have access to nearby emergency obstetric services
- 11% female TRICARE beneficiaries live within 30 minutes of an MTF

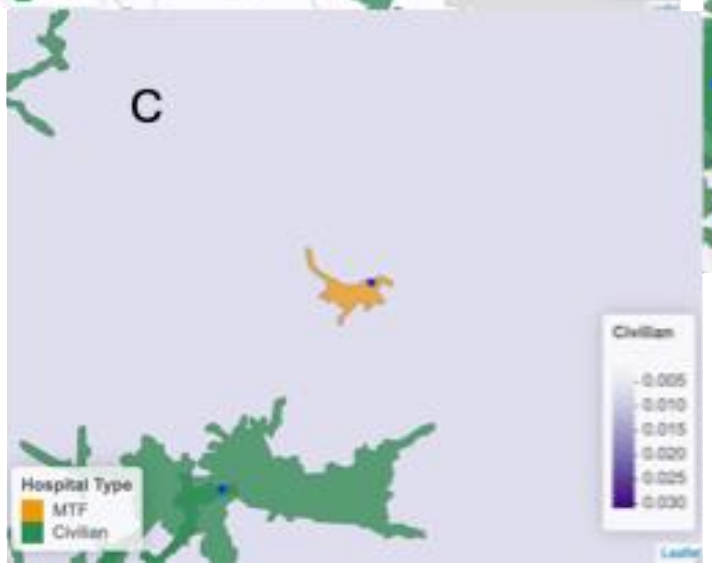
Coverage	Civilians Count (%)	TRICARE Beneficiaries Count (%)
Total women	133,138,038	2,951,700
Civilian Hospital		
30-Min coverage	87,592,439 (65.8)	1,698,943 (57.6)
No coverage	45,545,599 (34.2)	1,252,757 (42.4)
Military Treatment Facility		
30-Min coverage	3,464,556 (2.6)	326,052 (11.0)
No coverage	129,673,482 (97.4)	2,625,648 (89.0)

MTFs Without Civilian Hospital Overlap

- (A) Winn Army Community Hospital
- (B) Colonel Florence A. Blanchfield Community Hospital
- (C) Weed Army Community Hospital







Access to Obstetric Care at MTFs

- Four MTFs are the only hospital in 30-minute catchment area providing emergency obstetric care

Medical Treatment Facility	Civilians	TRICARE Beneficiaries
Bayne-Jones Army Community Hospital, Louisiana	25,726	7,448
Colonel Florence A. Blanchfield Community Hospital, Kentucky	111,883	35,350
Robert E Bush Naval Hospital, California	1,931,855	37,924
Weed Army Community Hospital, California	927,436	14,195

DISCUSSION

Discussion

- More MTFs are the only option for emergency obstetric care in their catchment area
  - 3 in 2021 vs 4 in 2024
  - If these MTFs close, 95,000 TRICARE beneficiaries lose access to care
- Fewer TRICARE beneficiaries within 30-minute drive
  - 11.9% in 2021 vs 11.0% in 2024
- Military-civilian partnerships could expand access to care for civilians
  - Potential to serve 3 million women with no access to nearby care

Discussion

- Many MTFs in areas with civilian hospitals are unable to absorb their patient population
- Maintaining emergency obstetric services at MTFs supports readiness
- **Policy Recommendation:** consider adding access to EOC to civilian populations to increase provider readiness.

Photo: U.S. Air Force

Limitations

- No standard guideline for travel time to reach a hospital in an obstetric emergency
  - We utilized the historical 30-min decision-to-incision guideline
  - Some women may require a shorter or longer travel time
- The ACS did not allow categorization of women of childbearing age
  - Study population includes women both above and below childbearing age
- Study period covers 2020-2024 – some hospitals and MTFs may have closed since then

CONCLUSIONS

Conclusions

- These results can inform decision-making regarding allocation of military medical resources
  - Prioritizing MTFs offering critical services
  - Identifying areas where more facilities are needed

Photo: US Department of Veterans Affairs

QUESTIONS?