Neural Tube Defects (NTDs) are serious birth defects of the spinal cord and brain. The occurrence of a NTD in a newborn is reported to the Michigan Birth Defects Registry (MBDR). Per MBDR reporting (1995-2003), the state birth prevalence is 5.8 NTDs per 10,000 live births (~1,000 cases).

BACKGROUND

Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) Survey shows 29% of Michigan women age 18-45 years consume a multivitamin daily. National average of 33% daily multivitamin consumption per March of Dimes Gallup Poll in 2005. Many Michigan counties have a NTD rate higher than the state average.

PURPOSE

Increase awareness and consumption of folic acid among non-pregnant women of childbearing age by providing folic acid education and free multivitamins with folic acid in selected high NTD-rate Michigan counties.

TARGET

Using MBDR data, Michigan counties with high rates of NTDs were identified and selected for outreach: Mecosta, Jackson, and Kent (Yr 01), plus Branch, Hillsdale, Ionia, Oceana, Ottawa, and St. Joseph (Yr 02). The target population was women of childbearing age receiving services at clinic sites within high-rate counties.

METHODS

Staff training
- August to September 2005 (Yr 01) and April to June 2006 (Yr 02)
- Offered to participating Women, Infants, and Children (WIC), Planned Parenthood, and other clinic staff
- Educational materials supplied
- Pretests and posttests administered
- Assured consistency in staff knowledge of purpose, protocol and delivery of folic acid message

Multivitamin distribution
- September to December 2005 (Yr 01) and January to December 2006 (Yr 02)
- Clients received free, three-month supply of multivitamins containing 400 mcg folic acid
- All recipients received one-on-one counseling about folic acid, educational materials and vitamin information sheets
- Informed consent obtained for follow-up

Follow-up survey
- December 2005 to March 2006 (Yr 01) and September to December 2006 (Yr 02)
- Brief telephone survey (8 items) administered to 199 vitamin recipients in Year 01 and 200 recipients in Year 02
- Assessed vitamin usage, perceived benefits and barriers to taking a daily multivitamin

RESULTS

Staff training
- Staff were from 4 Planned Parenthood and 2 WIC agencies
- Trained included Dietitians, Nutritionists, Registered Nurses, Nurse Practitioners, Social Workers, and Medical Assistants
- Pretests (n=34) and Posttests (n=35) containing 16 items to test folic acid knowledge were administered
- Results showed increase in knowledge

Multivitamin distribution
- Distribution of more than 5,000 bottles of multivitamins was achieved by participating clinics
- Most recipients surveyed (75.9%; n=303) received multivitamins at a Planned Parenthood clinic
- Pre-outreach, fewer recipients in Yr 02 (26.0% vs. 34.7%) reported taking multivitamins
- Increased in multivitamin use varied by age, race/ethnicity (Figure D)

Follow-up survey
- Survey collection required 6:1 attempts per completed survey

Demographics
- Majorities of surveys completed by women age 18-24 years (Figure A)
- Survey population diverse; majority were Caucasian (Figure B)

Percentage (n) of vitamin recipients consuming multivitamins (MV)
- Year-01
  - Never (pre-outreach) MVI use (pre-outreach) MVI use (post-outreach)
- Year-02
  - 18 (36)
  - 33 (66)
  - 60 (100)

Percentage (n) of vitamin recipients reporting taking a multivitamin regularly, by race and by age group, post-outreach
- Year-01
  - NI: 38 (51)
  - African American: 28 (46)
  - Year-02
  - NI: 55 (73)
  - African American: 31 (47)

Future Directions
- For 2007, enhanced outreach to higher risk populations, i.e., Hispanics, having a 1.5 to 2 fold elevated risk for NTD

PUBLIC HEALTH IMPLICATIONS

Free vitamin distribution combined with one-on-one education is one effective strategy for increasing folic acid awareness and utilization in low-income Michigan women.

PUBLIC HEALTH IMPLICATIONS

Informed consent obtained for follow-up

Pre-outreach, more recipients surveyed in Yr 02 (50.0% vs. 18.1%) had never taken multivitamins (Figure C)

Increase in multivitamin use varied by age, race/ethnicity (Figure D)

More than half recalled that folic acid prevents birth defects (Yr 01 & Yr 02)

CONCLUSIONS

Pre-test results indicated gaps in knowledge and awareness of the benefits of folic acid

Providing multivitamins as part of routine healthcare for women of childbearing age appears to be an effective method for increasing vitamin usage in this high-risk population

One-on-one education given by a trained health care provider reinforces positive health behaviors

REFERENCES

1. Michigan Birth Defects Registry: www.michigan.gov/PRAMS

FUTURE DIRECTIONS

For 2007, enhanced outreach to higher risk populations, i.e., Hispanics, having a 1.5 to 2 fold elevated risk for NTD

CONCLUSIONS

Ongoing education of health providers is needed to address continuing gaps in knowledge and awareness of the benefits of folic acid

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PUBLIC HEALTH IMPLICATIONS

Free vitamin distribution combined with one-on-one education is one effective strategy for increasing folic acid awareness and utilization in low-income Michigan women.

Increasing public awareness of additional health benefits of folic acid (indicated by 44% of our survey population) is another important message that may boost folic acid consumption

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