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STATEMENT OF

ELEANOR CHELIMSKY

DIRECTOR, PROGRAM EVALUATION AND
METHODOLOGY DIVISION

ON

EVALUATIONS OF WIC'S EFFECTIVENESS

BEFORE THE

COMMITTEE ON AGRICULTURE,
NUTRITION, AND FORESTRY

UNITED STATES SENATE

Mr. Chairman and Members of the Committee:

We are very pleased to be here today to discuss our observations regarding evaluative evidence about WIC's effectiveness. The Special Supplemental Food Program for Women, Infants, and Children (WIC), administered by the Food and Nutrition Service of the U.S. Department of Agriculture, was established by the Congress over a decade ago. It provides food supplements and nutrition education in conjunction with health care to pregnant and postpartum women and children up to age 5 who have health and nutrition risks as well as low incomes. Local, state, and national evaluations have been cited by many as substantial support that WIC is effective in improving the health of mothers and their children in specific ways. In contrast, others have criticized the studies as being so severely flawed methodologically that drawing any meaningful conclusions from them at all is unfounded.

In June, 1983, you asked that we analyze the technical and methodological soundness of the WIC evaluations and that we assess the credibility of the assertions that have been based on them about the program's effects on certain aspects of the nutrition and health of mothers and their children. Specifically, you requested that we focus on WIC's effects on miscarriages, stillbirths, and neonatal deaths and on maternal nutrition. With regard to positive pregnancy outcomes, you asked us to review WIC's effect on "high-risk" mothers and to review the claims that the length of participation in WIC is directly related to positive outcomes. With regard to infants and children, we were asked to look at WIC's effect on the birthweights of infants and

the claims that the program reduces the chances of anemia and mental retardation in infants and children.

Our recent report (GAO/PEMD-84-4) summarizes our review of the information and presents our observations regarding what is known about WIC's effectiveness for those outcomes in which you expressed an interest. With your permission, Mr. Chairman, and in response to your time constraints today, let me summarize only the main points of our report, and request that the report digest[1] be made part of the record.

WIC EVALUATION SYNTHESIS

To find out what is known about WIC's effectiveness, we formulated specific evaluation questions; identified the evaluation reports that are relevant to those questions; reviewed them for their design, methodology, execution, and findings; rated them on their credibility and soundness; and analyzed their conclusions. In addition to a bibliographic search, we used a survey questionnaire to contact a broad spectrum of WIC experts--nutritionists, health professionals, researchers, evaluators, and program administrators. Through this process, we identified 61 evaluations that contained information on one or more of the WIC outcomes of interest to you.

WHAT IS KNOWN ABOUT WIC's EFFECTIVENESS

The accompanying chart gives our assessment of the strength of the evidence in the various WIC evaluation reports. To be

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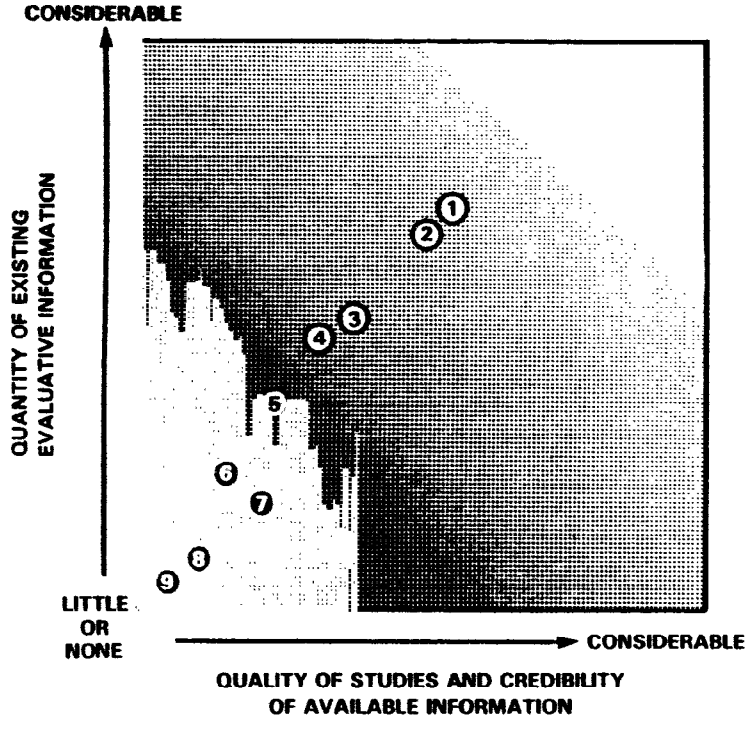
[1]GAO. WIC Evaluations Provide Some Favorable But No Conclusive Evidence On The Effects Expected For The Special Supplemental Program For Women, Infants, And Children, PEMD-84-4. Washington, D.C.: January 30, 1984.

OUR ASSESSMENT OF THE STRENGTH OF THE EVALUATIVE EVIDENCE ABOUT THE WIC PROGRAM'S EFFECTS



LEGEND:

- ☐ CONCLUSIVE EVIDENCE
- ⊡ SOME OR MODERATE EVIDENCE
- ■ GAPS IN KNOWLEDGE

KEY:

1. INCREASE IN MEAN BIRTHWEIGHTS
2. DECREASE IN PERCENTAGE OF LOW-BIRTHWEIGHT INFANTS
3. EFFECTS, FOR HIGH-RISK GROUPS AND FOR THOSE PARTICIPATING LONGER THAN 6 MONTHS, ON BIRTHWEIGHTS
4. IMPROVEMENT IN MATERNAL NUTRITION
5. DECREASE IN INCIDENCE OF ANEMIA IN INFANTS AND CHILDREN
6. DECREASE IN INCIDENCE OF FETAL AND NEONATAL MORTALITY
7. EFFECTS, BY LENGTH OF PARTICIPATION AND FOR HIGH-RISK GROUPS, ON MATERNAL NUTRITION, FETAL AND NEONATAL MORTALITY, AND ANEMIA IN INFANTS AND CHILDREN
8. DECREASE IN INCIDENCE OF MENTAL RETARDATION IN INFANTS AND CHILDREN
9. EFFECTS OF THE THREE SEPARATE WIC COMPONENTS

able to say that supporting evidence is conclusive regarding a specific WIC outcome, we looked for evaluative information that was adequate in quantity (which is measured on the vertical axis of the chart) and high in quality (which you can see on the chart's horizontal axis). The absence of topics in the unshaded area of the chart (the upper right corner) indicates that we found no conclusive evidence attesting to WIC's success or failure. As an example, we found substantial data on the birthweight question--circles 1 and 2 on the chart--but we found their quality moderate. Findings on the remaining questions move toward the "gaps in knowledge" corner of the chart, indicated by the darker shading. For example, we found little or no information on mental retardation and on the separate effects of WIC's services for food supplements, nutrition education, and adjunct health care (circles 8 and 9). In sum, our finding is that the information available from the WIC evaluations we reviewed is insufficient for making general or conclusive judgments about whether the WIC program is effective or ineffective overall. On the other hand, the information does indicate the likelihood, in a limited way, that WIC may have positive effects in some areas.

More specifically we found the following. In the area of infant birthweights--circles 1 and 2 on the chart--we found six studies whose evidence is of sufficient quality to give some support for the claim that WIC increases infant birthweights. The average increase in birthweight of infants born to WIC participants in these studies, between thirty and fifty grams, represents a gain of 1 to 2 percent of bodyweight. The most

noteworthy finding is that there appears to be a decrease in the number of low birthweight infants, that is, infants who weigh less than 2500 grams at birth. The incidence of low birthweight infants for all groups in these studies ranged from 5.4 percent to 13 percent. The average difference between the WIC groups and their comparison groups in these studies was 1.6 to 1.8 percentage points. This suggests that the effect of participation in the WIC program is a 16 to 20 percent decline in the low birthweight rate.

The variation among the different studies unfortunately prevented us from doing the same kind of summary analysis on the effects of WIC for specific high risk groups--circle 3 on the chart--that we did for birthweights. One study, for example, analyzed results among whites and nonwhites, while another analyzed results among blacks and nonblacks. Age categories were addressed in some studies and not others, and even where they were addressed, different age groupings were used. The more limited data we have on high-risk groups, however, do nonetheless suggest that infants born to teenage mothers participating in WIC are less likely to be of low birthweight than infants born to similar non-participating mothers. There is also some evidence that black women who participate in WIC give birth to infants with a higher mean birthweight and have a lower proportion of infants who weigh less than 2500 grams at birth than comparable black women who do not participate.

The strength of the evaluative information about the effect of length of participation in WIC on birthweights is also included in circle 3 on the chart. While there is evidence that

there is a rise in mean birthweight and a decline in the rate of low birthweight infants when program participation extends beyond six months, there were severe study design problems that place these conclusions at a lower level of confidence than the overall mean and low birthweight conclusions.

In the area of improvements to maternal nutrition, the quality and the quantity of evidence from WIC evaluations are lower than those on birthweight, as you can see from circle 4 on the chart. Six studies, of moderate quality, differ in so many important aspects (including the rigor with which they rule out alternative explanations and the measurements they report) that, again, we could not synthesize the results of these studies. Therefore while we can't make any firm conclusions, there is some evidence to suggest that participation in WIC is associated with some improvements in nutritional well-being, especially in diet, iron, and weight.

With regard to the assertion that WIC prevents anemia in infants and children, limited evidence from two studies of only moderate quality suggests that WIC may be associated with improving the iron levels in their blood. This is also the case with regard to children who are classified as anemic when they enter the program. We found the evidence in this area insufficient for conclusive support, as indicated by circle 5 on the chart.

Our ability to determine the effect of WIC participation on miscarriages and stillbirths or neonatal death--circle 6 on the chart--was hampered by two problems. First, the incidence of

death is so rare as to require far more careful attention to sampling design than is found in the existing evaluative research. Second, consistent measures have not been used across studies. Some researchers address stillbirths, and others address neonatal death, perinatal death, and infant mortality. Because of these problems we believe that the evidence is insufficient to support the claims that have been made in this area.

Looking at circle 7 on the chart, we found very little information in which we have confidence regarding the different effects that WIC may be having for different groups of WIC participants. The information is too insufficient and inconsistent to allow us to make informed judgments about how WIC's effects on fetal and neonatal mortality, maternal nutrition, and anemia in infants and children might differ for participants with varying health and nutrition risks. Some evidence suggests that longer participation in WIC improves iron levels in a mother's blood. As for anemia in children, the limited evidence suggests that its incidence is reduced the most during the first 6 months of participation. However, flaws in the evaluations make this evidence inconclusive.

Virtually nothing is known about whether WIC does or does not have an effect on the incidence of mental retardation as shown by circle 8 on the chart. No WIC evaluation has specifically addressed the question. One study did focus on the cognitive development of infants and children in WIC, but limitations in its study design and execution lower our confidence in its favorable conclusions.

Finally, we cannot comment at all on the differential impact of WIC components such as nutrition provided, versus nutrition education or health care because of the lack of evaluative information about the separate effects of the individual WIC components. That is why circle 9 is placed in the lower left bottom corner of the chart.

In summary, evidence--of highly varying quantity and quality--is available to support a range of inferences about the WIC program, but no definite conclusions. What this means is that, in many cases, the program evaluations performed did not yield the conclusive results expected of them. Why is this? Let us turn now for a moment to those evaluations.

THE CURRENT STATE OF WIC EVALUATIONS

Two kinds of problems are manifest in the evaluations we reviewed: those that could have been avoided and those in which state of the art problems make inconclusiveness unavoidable. First, the avoidable ones; these include common methodological problems such as the following:

--In many cases, the studies we reviewed lacked evaluation designs that are adequate for conclusive statements about program effects. Many could not rule out competing explanations for changes observed--that is, factors other than the program that could have been responsible for those changes. So causes and their effects were often not well established, especially the causal relationship between participation in WIC and a positive outcome.

--Data collection was not always appropriately controlled to insure uniformity and consistency. This results in a shaky data foundation on which to base conclusions.

--Many of the evaluations did not present sufficient, technical details about the WIC interventions that were being studied.

--Relationships between a mother's nutrition, her pregnancy, and the health of her children during the early years of life were often left unanalyzed.

--Finally, as a totality, the evaluations did not build on past research and were not designed to enable subsequent studies to use their results.

Now the unavoidable problems; here we would include at least the following four.

--First, ethical constraints are always imposed on evaluators with regard to true experimental designs. That is, there is a major problem in constructing adequate control groups when that construction means the refusal of services to groups of individuals who otherwise would be eligible for benefits.

--Second, the indexes used to measure nutrition were neither precise nor standardized and experts had not yet agreed on the indicators of nutritional inadequacy.

--Third, the evaluations could not separate the impacts of other programs from WIC, nor could they distinguish the individual effects of the specific intervention components within WIC itself.

--The fourth unavoidable problem is that the existing findings cannot be used to generalize to the WIC program as a whole. When either a large study of national scope or several representative studies with similar findings provide credible evidence about a program, a conclusion regarding general effectiveness can begin to emerge. In the case of WIC, such conclusions are not yet possible. Although it could be said that this problem was theoretically avoidable, we consider that in practice it was unavoidable because it is unrealistic to expect that evaluations necessary for generalizability could have been cost-effectively performed before WIC's implementation was stabilized and evaluation criteria and measures were formulated and refined.

Despite these evaluative problems, progress can be seen in the improved designs and methodologies of various recent evaluation efforts. The National WIC Evaluation that the Food and Nutrition Service has under way has placed considerable emphasis on reviewing past evaluation difficulties in order to guide the design of the new assessment. We look forward to the forthcoming report of this study. More generally, we believe future evaluations will be able to provide the Congress with the information it needs regarding WIC effectiveness.

CONCLUSION

It is important to point out that our findings do not mean that the WIC program is ineffective or that it is not having the desired effects. We simply do not know, with certainty, what

the answers are at this time. On the other hand, the more credible evidence, although insufficient to infer overall effectiveness, does, for the most part, indicate positive outcomes. For example, in the case of birthweights, evidence from six of the WIC studies indicates that participation in WIC may increase mean birthweights. Findings from five of these six studies indicate a decrease in the percentage of low birthweight infants born to WIC participants. The fact that these studies arrived at these conclusions seemed to us to be a valuable one to provide to the Committee, and we have done so.

Many of the studies we reviewed also provided information on other aspects of WIC. This information was intended to be used in ways other than for determining program effectiveness (for example, many of the state-level studies were undertaken to inform program managers and local and state decision makers about implementation and operational questions). Our focus in reviewing the WIC studies was directed at the effectiveness aspects of these evaluations and particularly at those outcomes in which you expressed a specific interest.

A final point we would like to make regards an additional, important benefit we feel has likely resulted from these WIC evaluation efforts. It is the role they appear to be playing in prompting nutrition and health care professionals to come closer together in developing common and accepted standards for their disciplines. Lack of such standards and criteria have impeded the ability of evaluators to measure program effects and these

problems have, in turn, raised the level of the debate regarding such standards. It appears now that there is real progress towards some consensus in several areas.

Mr. Chairman, this concludes my statement. We thank you for the opportunity to present our views here today and would be happy to explain any part of our testimony or answer any questions the Committee may have.

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