

Women's Health *REPORT*

A QUARTERLY PUBLICATION OF WOMEN'S HEALTH DIETETIC PRACTICE GROUP

THE EFFECTS OF CALCIUM AND MAGNESIUM SUPPLEMENTATION IN PREECLAMPTIC WOMEN: Is There a Relationship Between Preeclampsia and Peripartum Cardiomyopathy?

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INTRODUCTION

Over the past decade an increase in the number of admissions to the hospital for uncontrolled hypertension, heart failure, and cardiomyopathy has occurred. An important aspect of these conditions is the potential of previous high-risk pregnancies that may have been contributing factors. Preeclampsia which normally occurs after the 20th week of gestation is found in 5-10% of all pregnancies (1). The risk for preeclampsia increases with various conditions (see Table 1). Although the pathogenesis of preeclampsia remains unclear, preeclampsia is associated with vascular endothelial dysfunction (See Table 2) (1-2, 5-6). This decomposition, peripartum cardiomyopathy (PPCM), is a cardiac membrane (endothelial) dysfunction that occurs in one out of 1,300 pregnancies. This deterioration in heart function can appear from the last month of pregnancy through the 5th month postpartum (5, 9). Although PPCM is reversible with treatment, there is a mortality rate of 25 to 50 percent. Half of affected women will not regain normal cardiac function (2). Unfortunately, while attending physicians are consulting cardiologists for management of these conditions, they are not consulting with an obstetrician to provide insight into clinical outcomes as related to their previous pregnancies.

The effects of preeclampsia on both infant and mother can be disastrous. Infants born to preeclamptic mothers who do not receive adequate prenatal care have a higher risk of preterm birth with lower birth weights or have serious defects due to prematurity. In the mother, severe preeclampsia can lead to eclampsia with seizures, long-term dilated heart failure, and death. Because calcium (Ca) and magnesium (Mg) are implicated in preeclampsia and other hypertensive disorders, the objectives of this review are to:

Table 1: Risk Factors for Preeclampsia (2-4)

1. Body mass index (BMI) > 30
2. Age < 20 years or > 30 years old
3. African American ethnic background
4. Lower level of education
5. Multiple pregnancies
6. Calcium deficient diets
7. Magnesium deficient diets
8. Smoking
9. Late prenatal care

Table 2: Pathogenesis

1. Damaged endothelial cells cause decreased synthesis of prostacyclin, an eicosanoid responsible for vasodilation and inhibition of platelet aggregation
2. Insufficient production of endothelial nitric-oxide, another potent vasodilator.
3. The end result of the endothelial damage in PE is vasoconstriction, hypertension, intravascular coagulation and hypoperfusion.
4. Increased generalized inflammatory responses are thought to result from increased vasoconstriction
5. There may also be problems with immunity. Rejection of the placenta may occur through the production of abnormal maternal immune complexes.

Pathophysiology of Preeclampsia and Peripartum Cardiomyopathy

Preeclampsia is defined as an abrupt hypertension and proteinuria occurring within 7 days of each other (7). Edema and sudden weight gain are common symptoms of preeclampsia. These symptoms result from a marked vasospasm, an intravascular coagulation, and a redistribution of fluid from the intravascular to the interstitial fluid spaces. Abnormalities in the placenta appear to be implicated as the initiator of these conditions. The net result of this abnormal physiology is hypoperfusion to the organs, especially to the kidney, liver, brain and placenta. Hypertension, the primary characteristic of preeclampsia, occurs from increases in cardiac output, blood volume, and peripheral resistance (8).

Although the pathogenesis of PPCM is unclear, various risk factors have been identified (see Table 3). It has been proposed that the

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1. Reveal a potential relationship between Ca and Mg in preeclamptic women and peripartum cardiomyopathy development.

2. Provide practice recommendations on Ca and Mg supplementation during pregnancy.

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The Women's Health Report (ISSN-3233) is a quarterly publication of the Women's Health Dietetic Practice Group (WH DPG) of the American Dietetic Association. The WH Report features articles, as well as information on programs, materials, positions, and products for use of its readers. News of members, book reviews, announcements of future meetings, requests for information, or other items of interest to women and reproductive nutrition dietetics practitioners should be sent to the Newsletter Editor by the next published deadline date.

Subscription information:

Subscriptions are available for those are ineligible for ADA membership for \$32 (domestic); \$35 (international) to the WH Secretary. Back issues of the publication may also be ordered. Members: \$5 each; Non-members: \$10 each.

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from the chair Denise Andersen, MS, RD, LD, CLC

This past year as your chair has been both a rewarding and a remarkable experience. I would like to thank each of the members of the 2009-2010 Women's Health Executive Committee (EC) for their contributions to our DPG. Their collaborative efforts, expertise and talents made this another productive year. These outstanding colleagues devote many hours to ensure we are accomplishing the WH mission and goals. A personal thanks to Jamillah Hoy-Rosas, MPH, RD, CDN, CDE, Past Chair; Stephanie Bess, MS, RD, CDN, CLC, Chair-Elect; Judy Simon, MS, RD, CD, CHES, Treasurer; and Diane Whelan, MPH, RD, Secretary for their work on the Women's Health (WH) Executive Committee.

I would also like to thank Miri Rotkowitz, MA, RD, Communications Chair and Olivia Eisner, MPH, RD, IBCLC, Publications Editor for their work on the WH newsletter that has strived to provide up-to-date and relevant information and resources to our members. A special thanks also to Maria Pari-Keener, MS, RD, CDN, CPT-NASM, our Membership Committee Chair for organizing our educational webinars, and to all members of our committees for their continued dedication to the WH DPG.

My time as Chair of the WH DPG has been productive precisely because I have had the opportunity to meet and work with so many talented, energetic leaders. It has been fulfilling because of the expertise, knowledge and passion our members and volunteers bring to the table. Earlier this year the EC began working on our Strategic Plan for 2010 – 2013. The first steps involved a thorough review of our current strategic plan, the current mission and vision for WHDPG, the value of current WH membership services, and the possibility of new services that may be relevant to your practice. As we evaluate the top trends identified from the member survey, review and revise our current mission statement and goals, I am excited to see how far we have come and how the new directions and initiatives we will embark on in the next year begin to take shape. We will be sure to share these with all of you in the near future.

As my time as chair of the WH DPG comes to an end, I am excited to share with you that our incoming chair Stephanie Bess, MS, RD, LDN, CLC is poised to bring you another great year. Her talents, energy and leadership will ensure another successful year for the WH DPG!



from the editor Olivia Eisner, MPH, RD, IBCLC

I always find it amusing that while deep in the process of pulling together yet another one of our newsletters - I find myself surrounded with whatever "theme" the publications committee has decided on for our upcoming issue. This season I found it remarkable that while on a Delta flight to Seattle to visit my husband (who now works 2,302 miles away) I picked up the in-flight magazine, only to find an article written about generational differences in the workplace and beyond. At nearly the same time, my dearest friend from childhood lands up with an emergency C-section from complications of pre-eclampsia. Now, whether this signifies just some uncanny coincidence or the fact that your Publications Committee is one-step ahead of the pulse we will never know.

This season, we bring you two great articles on just these topics. Kimberly T. Thompson, MS, RD, LDN shares an article on the effects of calcium and magnesium supplementation in preeclamptic women. While, Jennifer Reiner, MS, RD and Courtney Spurlock, MS, RD, Divisional Directors for Morrison Management Specialists highlight the ways in which understanding generational differences in the workplace can make for a more effective and fulfilling workplace environment for baby boomers right down to the millennials. To round out our offerings, Cathy Fagen, MA, RD, Past Chair for the Women's Health DPG brings us an article highlighting the latest recommendations on screening and diagnosis guidelines for abnormal glucose tolerance in pregnancy.

What I do know after 3 years of working with the editorial team, is that we as a dedicated group of volunteers spend countless hours trying to decide what kinds of articles would most suit our readers and even more hours trying to find appropriate authors. This of course leads me to one very important conclusion: we need to hear more from you! Please, let us know what kinds of topics you would like us to cover and even more importantly consider sharing your particular expertise with us! We are always a click away... You can reach me at whdpgpublications@gmail.com or Miri Rotkowitz, MA, RD our Communications Chair at whdpgcommunications@gmail.com. Please let us know how we can best meet your needs!

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Table 3: Risk Factors for Peripartum Cardiomyopathy (2, 9)

1. Multiparity
2. Twin Births
3. Age > 30 years
4. Preeclampsia
5. Gestational Hypertension
6. African-American race

hypervolemia in preeclampsia due to the increased blood volume of the fetus may cause an increase in renal blood flow, affecting cardiac function (10). This increased blood flow has been seen to lead to various physiologic side effects in PPCM (see Table 4). Mg supplementation may be effective in the treatment of the membrane dysfunction and cell death that occurs in PPCM (10). It was postulated that Mg decreases cell death by reducing intracellular Ca through ATP activation. Ca carbonate supplementation was also effective in decreasing the vascular endothelial dysfunction that is associated with dilated cardiomyopathy cases (11). Unfortunately, no other studies have been found that look at endothelial dysfunction in the preeclamptic population.

Table 4: Pathophysiologic Side Effects of Increased Blood Flow on Preeclamptic Women (2)

1. Elevated titers of autoantibodies
2. Elevated select cardiac tissue proteins
3. Increased levels of tumor necrosis factor- α
4. Increased levels of Interleukin-6,
5. Increased levels of soluble Fas cell death receptors

Mg Deficiency in Pregnancy and Preeclampsia

Mg deficiency is implicated in preeclampsia because it promotes vasodilation and blood pressure regulation (12). Pregnant women are at a higher risk for Mg deficiency, which can lead to hypertension. Mg deficiency is defined as a serum Mg level < 1.5 mEq/L (8). Mg losses occur in pregnancy through increased Mg placental transfer, nausea, and vomiting; postpartum Mg is also lost in breast milk (12-14). In addition, high consumption of soft water and alcohol that contain other competing minerals may contribute to Mg deficiency (14). Processed foods are likely to be more deficient in Mg. Mg is also lost through the boiling cooking method. Pregnant women are encouraged to consume at least 350- 400 mg of Mg per day.

Mg deficiency decreases production of the nitric acid vasodilator and promotes hypertension (15). Mg deficiency causes a Ca imbalance by blocking the entry of Ca into the myocardial cells (8, 16). These processes can lead to several unpleasant side effects (see Table 5). The effect of Mg supplementation on the incidence of preeclampsia varies greatly (18-22). Mg oxide decreased the number of new cases of preeclampsia by 4 percent (18). However, Mg sulfate was found to decrease the danger of preeclampsia in women given the supplement by 58% (19). As a result, pregnant women are encouraged to eat more sources high in Mg to equal 350 – 400

mg daily. A list of selected foods and their Mg content is shown in Table 6.

Table 5: Clinical Manifestations of Magnesium Deficiency (17)

1. Tremors
2. Muscle Spasms
3. Personality Changes
4. Anorexia, Nausea, Vomiting
5. Tetany
6. Myclonic Jerks
7. Movements
8. Convulsions
9. Coma
10. Hypocalcemia
11. Hypokalemia
12. Decreased PTH secretion from parathyroid glands

Table 6: Sources of Magnesium in the Diet (17)

Food	Amount (mg)
Tofu, firm ½ cup	118
Chili with beans, 1 cup	115
Wheat germ, toasted, ¼ cup	90
Cashews, roasted, ¼ cup	89
Halibut, backed, 3 oz	78
Swiss chard, cooked, ½ cup	75
Peanuts, roasted, ¼ cup	67
Chocolate chips, semisweet, ¼ cup	58
Baked potato with skin, 1	55
Cocoa powder, 2 T	52
Molasses, blackstrap, 1 T	52
Cereal, raisin bran, 1 oz	48
Spinach, fresh, 1 cup	44
Cheerios, 1 oz	39
Milk, 2% fat, 1 cup	33
Bread, whole-wheat, 1 slice	26
Chicken, breast, 3 oz	25
Green peas, frozen, cooked, ½ cup	23
Ground beef, lean, 3 oz	16
Fruits	10-25
Coffee, brewed, ¾ cup	9
Egg, 1	5

Ca Deficiency in Pregnancy

Pregnancy can cause a significant decrease in Ca status. Hypocalcemia is defined as a serum calcium level less than 8.5 mg/dL (8). Hypocalcemia in pregnancy has been seen through reports of decreased ionized calcium levels (23). This deficiency can happen in three different ways during pregnancy. Hypocalcemia can occur when the fetus starts to leach calcium from the maternal bones and teeth for the development of its own skeletal systems. This transfer increases from 50 mg/day at about the 20th week of

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gestation to 350 mg/day after the 35th week of gestation (7, 24). Another type of hypocalcemia can occur in women that have problems with lactose intolerance leading to a low dairy intake. And finally, hypocalcemia can occur if serum Mg concentrations are low. The side effects of hypocalcemia are not as prevalent as can be seen in Mg deficiency. This makes a Ca deficiency more difficult to detect. The main side effect, osteoporosis, can take time to develop. As a result, it is important that pregnant women obtain at least 1000-1300 mg daily. A list of selected foods and their Ca content is shown in Table 7.

Table 7: Calcium Sources in the Diet (17)

Food	Amount (mg)
Yogurt, low-fat, w/ fruit, 1 cup	345
Milk, skim, 1 cup	302
Ice milk, soft-serve, 1 cup	274
Yogurt, frozen, 1 cup	240
Cheese, cheddar, 1 oz	204
Salmon, canned, w/ bones, 3 ½ oz	185
Ice cream, vanilla, 1 cup	176
Rhubarb, cooked, ½ cup	174
Cheese, cottage, 2% fat, 1 cup	155
Spinach, frozen, cooked, ½ cup	138
Molasses, blackstrap, 1 T	137
Tofu, regular, ½ cup	130
Milk, dry, instant, nonfat, 2 T	104
Almonds, ¼ cup	92
Baked beans, white, ½ cup	64
Frankfurter, turkey, 1	58
Orange, 1 medium	52
Halibut, baked, 3 oz	51
Kale, fresh, cooked, ½ cup	47
Broccoli, cooked from fresh, ½ cup	36
Bread, whole-wheat, 1 slice	32
Waffle, frozen, 4" diameter, 1	29
Cheese, cream, 2 T	23
Oatmeal, cooked, 1 cup	19
Cream, half and half, 1 T	16
Chicken, breast, baked, 3 oz	13
Banana, 1 medium	7
Ground beef, lean, 3 oz	4

Ca Supplementation in Preeclampsia and Endothelial Dysfunction

The incidence and relative risk of preeclampsia was noted to differ between studies based on supplement type, supplement dose, when the supplement was started during pregnancy, and joint supplementation with folic acid, ferrous sulfate, and conjugated linoleic acid (6-7, 11, 24, 25-32). Ca carbonate either did not affect the number of new cases of preeclampsia at all, or it decreased the number by as much as 30% (11, 26, 28-32). The relative risk for developing preeclampsia was anywhere from 0.13 – 0.95 with Ca carbonate or in other words 5-87% less risk of developing preeclampsia with supplementation (26, 28, 30-31). Elemental Ca decreased the number of

new cases of preeclampsia by 9-27% over the control groups (6, 24-25, 27). The relative risk of developing preeclampsia with elemental Ca supplementation was reported to be 0.25 or in other words 75% less risk of developing preeclampsia with supplementation (6).

Table 8: Mechanisms of Action of Calcium in Blood Pressure Regulation (33-34)

1. **Membrane stability of smooth muscle**
2. **Formation and release of endothelium-derived relaxing factor**
3. **Alteration of neuronal function**
4. **Vascular relaxation**
5. **Modulating the activity of calcium-regulating hormones**
6. **Intracellular Ca, with the help of ATP production through phosphorylation by Mg, causes the heart to pump.**

Ca is the primary electrolyte involved in regulation of heart rate and blood pressure control. Calcium has several mechanisms of action involved in blood pressure control (Table 8). In Ca deficiency, there are increases in the intracellular Ca within the blood vessels. This causes vasoconstriction and blood pressure elevation (1, 8, 23). Calcium supplementation appears to reduce the hypertension observed in preeclampsia. This reduction can be seen through alterations in vasoconstriction, vasodilation, PTH secretion, mean arterial pressure (MAP), and total peripheral resistance (TPR).

SUMMARY

There have been so many differences in trial design that no solid recommendations can be made for one type of supplement or dose over another. Limitations in the interpretations of the reviewed studies included small sample sizes in some cases, changes in dosing, varying formulations, and geographic locations making it difficult to extrapolate the results to the U.S. patient population. Until further research is completed, current recommendations are to provide pregnant women with the Recommended Dietary Allowance (RDA) level of Mg and the Adequate Intake (AI) level of Ca. These amounts would promote the recommended 2:1 Ca to Mg ratio. The RDA for Mg is 400, 350, and 360 mg for pregnant women aged 18 or less, 19 to 30, and 31 to 50 years, respectively (38). The AI for Ca is 1300 mg and 1000 mg for pregnant women aged 18 or less, and 19 to 50 years, respectively. The Tolerable Upper Intake Level (UL) for Mg is 350 mg (represented as added Mg) and 2500 mg Ca. It is important not to exceed the UL. Excessively high Ca and Mg supplement levels for pregnant women could cause harm to the woman and fetus.

RESEARCH AND PRACTICE RECOMMENDATIONS

1. Further research is needed to provide more information about minimizing the risk of PPCM in women with preeclampsia.
2. A retrospective analysis of Ca and Mg intake in women with PPCM may provide insight on the relationship between diet and PPCM.
3. It is important to develop a screening tool that clinicians can use to identify women at risk for preeclampsia or PPCM in order to formulate appropriate recommendations.
4. Dietitians should be aware of women at risk of Ca and Mg

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GENERATIONAL DIFFERENCES IN THE WORKPLACE

By Jennifer Reiner, MS, RD and Courtney Spurlock, MS, RD *Division Directors of Nutrition, Morrison Management Specialists.*

As we welcome a new generation of employees to the workplace, employers have to learn how to manage a labor force with generational differences. For the first time in history, four generations are working alongside each other, each with different expectations of the workplace. This article will define and compare characteristics of the different generations found in today’s work force, review how generational work values differ, how they impact the workplace, and explore ideas and insight used to successfully recruit, recognize and retain all generations.

The Bureau of Labor Statistics (BLS) defines the labor force as the number of people age 16 and older employed or looking for employment. The status of the labor force is a direct reflection of economic growth and prosperity. The U.S. economy has enjoyed a growing labor force for many years. In fact, the civilian labor force experienced a 1.6% annual growth rate between 1950 and 2000. However, since 2000 the U.S. has experienced a much slower growth rate and this slow growth is speculated to continue through the next decade (1).

There are many explanations for this projection including a decrease in employment participation among baby boomers. Despite today’s challenged economy which may influence some baby boomers to remain in the labor force longer, we can be certain that eventually, their participation rates will slow which will in turn negatively impact the U.S. labor force. In order for organizations to remain successful in this new era of change, it is necessary that a focus be placed on recruiting, retaining, and developing the next generation.

Characteristics of the Generations Represented in Today’s Workplace

A generation is a group of people defined by age boundaries. Generations are born during a certain era; sharing similar cultural and social experiences; presenting with similar attitudes and values.

Researchers have divided the work force into four generations. These four generations are defined by the year they were born and consist of approximately a 20-year span, though not all demographers and generation researchers agree on the exact start and stop dates defining each (Table 1.0). Estimates show that Baby Boomers comprise the majority of today’s overall workforce, while the Traditionalists make up the minority (Table 2.0). American Dietetic Association’s (ADA) estimates find similar results (Table 3.0). One difference worth noting is that the field of dietetics employs more Traditionalists than the overall workforce, widening the gap between the oldest generation and the youngest in our field. A sixty-year difference exists between the Traditionalists and the Millennial generation, leaving managers at a loss as to how to recruit, retain and develop this diverse group.

Table 1.0: Generations by Age

Traditionalist	1920-1944 (Ages 62 to 82)
Baby Boomers	1945-1960 (Ages 43 to 61)
Generation X	1961-1980 (Ages 28 to 42)
Generation Y, Millennials	1981-2000 (Ages 13 to 27)

Table 2.0: General Workforce Statistics

Generation Type	% US workforce
Traditionalist	6%
Baby Boomers	40%
Generation Xers	21%
Millennial, Generation Y’s	33%

Table 3.0: ADA Workforce

Generation Type	% in ADA workforce
Traditionalist	15%
Baby Boomers	33%
Generation Xers	24%
Millennial, Generation Y’s	28%

Traditionalists (1920-1944)

The Traditionalists grew up in an era that encompassed the Wall Street stock market crash, the Great Depression, the bombing of Pearl Harbor, WWII, and the advent of Social Security. Traditionalists typically come from larger families and have a strong sense of extended family, having grandparents who often lived in the home. They were raised by the GI generation and were likely to perceive the world as “safe.” This generation often entered the work force immediately after high school and stayed committed to their occupation and employer. Characteristics about this generation that employers should be sensitive to include the Traditionalists’ extreme sense of loyalty, resistance to change, value of logic and discipline, and preference for a top-bottom management style.

Baby Boomers (1945-1960)

Baby Boomers make up the largest generation in today’s society. In fact, they are the largest generation in U.S. history. This generation witnessed the civil rights movement, the assassination of world leaders, the birth of rock and roll and the introduction of television. The boomers were the first generation to live miles away from extended family while raising their nuclear family. Typically one income families, female boomers usually stayed home while the male supported the family. Like the traditionalists, the boomers perceived the world as safe. Employers should be mindful of Baby Boomer work characteristics including the boomers’ hardworking, competitive nature, and the expectation of title and recognition. Boomers tend to be money- motivated, and are less inclined to strive for a work-life balance.

Generation X (1961-1980)

Gen Xers grew up during a time when divorce reached an all time high and family systems were considered to be weak or broken. They typically belong to smaller families and often grew up as the only child in the family. They learned at a young age that they could count only on themselves. This generation witnessed the man on the moon, the advent of personal computers, the Challenger disaster, the rise of pop music and the AIDS epidemic. They tend to perceive the world as unsafe, making them the first generation in 40 years to

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this point of view. Characteristics about this generation that should be considered include the desire for freedom and work-life balance, the desire for a portable career, and a resentment of micromanagement. Gen Xers are resourceful, adapt easily to change, and embrace technology. However, they are generally distrustful of big business.

Generation Y/Millennial Generation (1981-2000)

Gen Xers grew up during a time when divorce reached an all time high and family systems were considered to be weak or broken. They typically belong to smaller families and often grew up as the only child in the family. They learned at a young age that they could count only on themselves. This generation witnessed the man on the moon, the advent of personal computers, the Challenger disaster, the rise of pop music and the AIDS epidemic. They tend to perceive the world as unsafe, making them the first generation in 40 years to this point of view. Characteristics about this generation that should be considered include the desire for freedom and work-life balance, the desire for a portable career, and a resentment of micromanagement. Gen Xers are resourceful, adapt easily to change, and embrace technology. However, they are generally distrustful of big business.

Managing generational differences

A sixty year span in values, experience and attitude can make managing today’s workforce a challenge. It is important for managers to understand the way that these four generations perceive one another as they work toward bridging this gap. When we review perceptions among the generations, it becomes evident that a divide exists between the Traditionalists & Boomers versus the Gen Xers and Millennials (Table 5.0)

Table 5.0: Perceptions among the Generations

Traditional and Boomer Perspective	Generation X and Millennials Perspective
<input type="checkbox"/> The young people of today have an attitude problem	<input type="checkbox"/> I don't like being stuck in a cubicle with nothing to do
<input type="checkbox"/> They want everything on their own terms	<input type="checkbox"/> The guy that hired me hardly ever makes contact
<input type="checkbox"/> They don't understand that they have to pay their dues	<input type="checkbox"/> My skills haven't been tested
<input type="checkbox"/> They have barely started the job and they expect to be sent to some expensive training program	<input type="checkbox"/> I don't want to be locked in a dead-end job
<input type="checkbox"/> They work the minimum hours and then go home	<input type="checkbox"/> Nobody asks me for my opinion
<input type="checkbox"/> They have a short attention span	<input type="checkbox"/> Nobody recognizes my contributions
<input type="checkbox"/> I'm doing more parenting than managing	
<input type="checkbox"/> They dress too casually for the workplace	

So, how do we bridge the gap? Researchers suggest first trying to understand work place differences by identifying and assessing value differences, acknowledging implications, and then changing behaviors. We should try to bridge differences by communicating needs, building on commonalities, accepting differences, and tapping into motivations. Finally, we should manage differences by setting clear goals, sharing a common purpose, expecting mutual accountability, and giving real recognition.

Recruitment, Retention and Development: A Case Example

In 2007, our organization realized a new challenge related to recruitment, retention and development of Registered Dietitians (RDs). As a result, we hosted 10 RD focus groups across the country. We invited a diverse group of RDs varying in age, tenure, gender and experience to attend. Each focus group included 15 or fewer participants, lasted approximately 6 hours, and were designed to include brainstorming, open discussion, and identification of criteria RDs are looking for when they seek and sustain employment.

As part of our evaluation, Morrison was able to identify the top priorities from each generational group represented in our focus groups. Although there are some similarities, each generation is motivated uniquely. For example, the Traditionalists want to stay relevant and leave behind a legacy, while the Boomers need to find meaning and balance in their work. The Gen Xers desire challenging work and opportunities for continued learning, while the Millennials want to be taken seriously as contributors.

Recruiting across the Generations

Each generation gravitates towards a unique recruiting style. Knowing what traits or criteria each generation seeks while job searching can assist employers in their recruitment efforts. For example, the Traditionalist is looking for a structured recruiting process. Employers will find it challenging to get the Traditionalist to “open up” and therefore may have to be creative in the types of questions that they ask. Instead of using a panel interview process, the Traditionalist will appreciate an individual focus. Therefore, it is worth considering conducting a series of interviews, which allow the Traditionalist to acclimate to the process, and provide employers with the level of information they are looking for over time. Employers should highlight information about the position that the Traditionalist will be attracted to, such as the ability for one to make a contribution to society through the work offered. In contrast, Baby Boomers may not need the amount of detail that the Traditionalist seeks. Boomers tend to consider the “big picture” and may be more concerned with impressing the interviewer than about the particulars of the position. Boomers view work as an exciting adventure; help them find this in the position available. The Boomer will adjust nicely to an individual interview format or a panel interview.

We see a dramatic turn in the recruiting process when we look at Generation X. This group tends to be very engaged in the process and eager to learn every detail about the position. At times employers feel that they are the ones in the hot seat when interviewing a candidate from this generation. Remember that candidates from this generation may be sceptical coming to the interview. Help put their minds at ease from the start by talking about the ability for one to exercise creativity in the position. If flexible hours or work environments are available, be sure to “sell” this point to the Generation Xer. One should likewise be prepared during the interview process for a lot of questions from the Millennial, who may be eager to hear as much as you are willing to share about the position. Don’t be put off if the Millennial comes across as demanding; this generation is goal oriented, entrepreneurial and is highly adept at multitasking.

Attract the younger generations by emphasizing learning and advancement opportunities. Help them see that rather than just “paying their dues”, their work is meaningful. Incorporate multi-tasking so that members of the younger generations may experience the change and variety they desperately crave.

Retaining Employees across the Generations

Once an organization has recruited the best employee, the next challenge is retaining the talent. Again, each of the four generations found in today’s work force differ in what keeps them at work, and each generation perceives job changes differently. The Traditionalist believes that frequent job changes carry a stigma, while Generation Xers feel that job changes are necessary in order to become more marketable, and members of Generation Y often believe that they can handle more than one job at a time. Recognize the loyalty that senior staff members bring to the table and reward their loyalty. Looking toward the future, it will be imperative that employers recognize that the younger generations may show little company loyalty if opportunity and ongoing development are not provided. Provide the younger generations with meaningful feedback regarding performance and development, create opportunities for entrepreneurship, and work toward making the workplace a fun place to be.

Developing Employees across the Generations

Embracing a development plan that crosses the generations is essential in today’s market. Mentoring programs have been widely recognized and well received by employees across the generations. Mentoring is a developmental partnership where one person shares knowledge, skills, information, and perspective to foster the personal and professional growth of another, and may follow an informal or formal approach. An informal program may be best described as a casual relationship where a senior person takes a junior person “under his or her wing” and provides long-term direction and counsel. A structured mentoring program helps to create a culture where people can support the development of one another. In a structured mentoring program, mentors are generally matched with mentees to support specific goals such as leadership and development. In addition to a mentoring program, organizations are creating developmental learning plans or career ladders that allow employees to visualize their advancement within the organization.

In order for an organization to survive and to be able to bridge the generational gaps, it is important that they recognize that a single program, management style and work environment will not be successful. Rather, organizations must seek to understand what motivates each generation to achieve job satisfaction, and recognize that in order to remain competitive as an employer of choice, they must embrace a new management model that is based more on work-life balance, autonomy, independence and challenging, innovative work instead of a model that is based on tradition, outdated systems, and hierarchy.

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Women’s Health DPG! Please
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http://www.womenshealthdpg.org/members_survey.html

New IOM Weight Gain Grids Now Available:

The forms are located at:

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- CDPH 4472 B2 Prenatal Weight Gain Grid: Pre-pregnancy Normal Weight Range
- CDPH 4472 B3 Prenatal Weight Gain Grid: Pre-pregnancy Overweight Range
- CDPH 4472 B4 Prenatal Weight Gain Grid: Pre-pregnancy Obese Weight Range

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*“Leading the future of
dietetics in women’s health.”*

SCREENING AND DIAGNOSIS OF ABNORMAL GLUCOSE TOLERANCE IN PREGNANCY: Updated Results and Recommendations

By Cathy Fagen, MA, RD California Diabetes and Pregnancy Program Regional Coordinator

Universal screening of all pregnant women for gestational diabetes (GDM) at 24-28 weeks has long been the recommendation of the American Diabetes Association (ADA) and the California Diabetes & Pregnancy Program (CDAPP). The American College of Obstetricians and Gynecologists (ACOG) on the other hand have been more conservative with their recommendations.

ACOG previously recommended screening for GDM based on historical risk factors (prior GDM, stillbirth, macrosomic birth, family history) and clinical risk factors (glucosuria, obesity, polyhydramnios). However, physicians found this practice missed 35% of women with GDM who had significant morbidity and increased medical risk. The current ACOG recommendation is to conduct a risk assessment at the first prenatal visit. If the woman falls into a high risk group (obesity, ethnic group with a high prevalence of diabetes, strong family history or personal history, glucosuria) then she should be screened for GDM at the initial visit, and if negative, re-screened at 24-28 weeks. If the woman is considered low risk (age < 25y, no family or personal history, no ethnic risk, not obese, and no poor obstetric history) she is not screened for GDM at all. For those women who are of average risk (do not fit into the high or low risk groups) screening takes place at 24-28 weeks gestation.

The optimal method of screening has been controversial and there had been insufficient data to draw firm conclusions. In 2003 the U.S. Preventive Services Task Force reported there were no well-conducted randomized control trials providing direct evidence for the benefits of screening (1). In addition, there was a lack of population-derived data supporting the benefit of making the diagnosis of GDM and little information regarding the effectiveness of treatment versus no treatment.

Two years later Crowther and colleagues provided the critical evidence needed (2). Their randomized controlled trial supported use of screening and treatment for women at risk of GDM. Their intervention group had significantly reduced risk of adverse perinatal outcomes without increased rate of cesarean delivery. And these mothers had a longer-term benefit of decreased depression and improved quality of life. However, this study did not answer the question on what level of blood glucose warrants treatment intervention.

In comes the HAPO study! (3) The Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study was a multicenter clinical trial that assessed the relationship between glycemia and perinatal outcomes on a heterogeneous, multinational, multicultural, ethnically diverse cohort of approximately 25,000 women. Fifteen centers in 9 countries participated in this clinical trial to clarify associations of levels of maternal glucose lower than those diagnostic of diabetes with perinatal outcome. Women were tested with a 75-g oral glucose tolerance test (OGTT) in their third trimester and if they had a FPG > 105 mg/dl or 2hr > 200 mg/dl they were removed from the study. Medical caregivers were blinded to the status of glucose tolerance of the study participants. There were continuous graded relationships between higher maternal glucose and increasing frequency of the primary outcomes (birthweight > 90th percentile, % body fat and cord C-peptide > 90th percentile).

Because these associations were continuous with no obvious thresholds at which risks increased, it was concluded that a consensus was required to translate these results into clinical practice. The International Association of Diabetes and Pregnancy Study Groups (IADPSG) is an umbrella organization established to foster an international approach to enhancing the quality of care, facilitating research and advancing education in the field of diabetes in pregnancy. In June 2008 the IADPSG Consensus Panel was convened in Pasadena, CA with representation from the 10 member organizations and other organizations with an interest in diabetes and pregnancy. The consensus summary report was finally published this past March 2010 in Diabetes Care (4). A consensus report is not subject to subsequent review or approval and does not represent official ADA opinion. The threshold values recommended in this report for diagnosis of GDM are depicted in Table 1.

Table 1. Threshold Values for Diagnosis of GDM

Glucose measure	Glucose concentration threshold	
	mmol/l	mg/dl
FPG	5.1	92
1-h plasma glucose	10.0	180
2-h plasma glucose	8.5	153

These thresholds are the average glucose values at which odds for birthweight > 90th percentile, percent body fat > 90th percentile and cord C-peptide > 90th percentile reached 1.75 times the estimated odds of these outcomes at mean glucose values. At least one of these thresholds must be equaled or exceeded to make a diagnosis of GDM. These values represent the best choice from a clinical perspective, and they meet the predefined strength of association from an epidemiological perspective.

Due to the ongoing epidemics of obesity and type 2 diabetes in young women we are seeing an increasing number of women who are undiagnosed before pregnancy with increased risk of congenital anomalies in their offspring and risk of diabetes complications during their pregnancy. These women need rapid treatment and close monitoring. There was uniform agreement among IADPSG Consensus Panel members that assessment for undiagnosed type 2 diabetes should be made during the initial prenatal visit (see Table 2). The panel favored use of any available certified laboratory measure of glucose (FPG, random plasma glucose, or A1C) for initial detection

Continued on page 11

Interested in learning more about the IADPSG conference?

Contact Cathy Fagen, MA, RD by email at cfagen@memorialcare.org for notes on the conference.

MEMBER SPOTLIGHT *By Stefanie Casillas*



Kathleen Pellechia, RD

Our very own Web site Coordinator, Kathleen Pellechia, RD, is this month's featured member!

How did you get into dietetics?

I was a dancer and was therefore always interested in health. Like most dietitians I also love food, so I decided to major in nutrition when I attended Rutgers University.

How did your career as a dietitian progress after college?

During my undergraduate studies I became interested in the use of Web sites for nutrition education. After receiving my BS from Rutgers, I completed my Dietetic Internship at the University of Maryland College Park, which has an information technology emphasis and a rotation through the USDA Food and Nutrition Information Center (FNIC). I applied for a job with FNIC and started working there once I completed my Dietetic Internship. I've now been there for seven years. As the Electronic Resources Coordinator for the WIC Works Resource System, I create and maintain online nutrition education resources, develop online training, and write resource lists for WIC staff, amongst other duties.

When did you become involved with the Women's Health DPG and how has your position as Web site Coordinator evolved?

I've been a member since 2005. ADA originally managed the DPG's Web site, which I maintained, but we decided to move

the Web site to its own independent server a few years ago. I created the new Web site (www.womenshealthdpg.org) and have kept it current since then. I also used to manage the WH Yahoo listserv, but recently passed it on to another volunteer. Additionally, I'm on the editorial committee of the Newsletter. Participation in the Women's Health DPG has opened a great network; it has been a wonderful way to meet new people, especially when I am able to attend the DPG networking events at ADA conferences.

What do you enjoy most about being an RD?

I really love technology and working with it, especially through its use as a tool to educate individuals about nutrition. Technology and the Internet are ever evolving and I'm now getting into Twitter and social media as a means of disseminating knowledge, which is exciting. I also love working with the WIC program and developing educational resources for it.

What has been a highlight of your career?

My work with dietetic interns and students. I also guest-lecture at the University of Maryland and recently introduced some high school students to our field. It's great to come full circle!

What resources do you use most on a daily basis?

We have a lot of resources here, especially since we're located within the USDA's National Agricultural Library. I also spend a lot of time browsing PubMed and Medline Plus from the National Library of Medicine, and the Maternal and Child Health Library at Georgetown University.

CALENDAR OF EVENTS

June 9-12, 2010 Hartman Hale Lactation Research Conference 2010 Amarillo, Texas
Website: <http://www.ibreastfeeding.com>

July 19-21, 2010 19th National Conference on Advances in Perinatal & Pediatric Nutrition Stanford University, Stanford, CA
Website: <http://nutritionconference.stanford.edu/>

July 21-25, 2010 International Lactation Consultant Association 2010 Conference and Annual Meeting San Antonio, Texas
Website: <http://www.ilca.org/i4a/pages/index.cfm?pageid=1>

July 28-30, 2010 National Maternal and Infant Nutrition Intensive Course
University of Minnesota, Hubert H Humphrey Center, Minneapolis, Minnesota
*Distance Learning Options Available
Website: <http://www.sph.umn.edu/ce/cptheo/>

September 22-26, 2010 National WIC Association 2010 Biennial Nutrition Education & Breastfeeding Conference San Diego, CA
Website: <http://www.nwica.org/events/a3>

September 22-26, 2010 Global Conference of Maternal and Infant Health
Barcelona, Spain
Website: http://www.globalcongress2010.com/index.php?option=com_content&view=article&id=46&Itemid=53&lang=en

October 2-6, 2010 Mind-Body Medicine 2010 Crystal City, Virginia
Website: <http://www.cmbm.org>

October 21-22, 2010 The American Institute for Cancer Research (AICR) Annual Research Conference on Food, Nutrition, Physical Activity & Cancer
Capital Hilton Hotel Washington, DC
Website: <http://www.aicr.org/conference>

November 6-10, 2010 American Dietetic Association's Food & Nutrition Conference & Expo Boston, Massachusetts
Website: <http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/events.html>

November 6-10, 2010 American Public Health Association Annual Meeting - Social Justice: Public Health Imperative Denver, CO
Website: <http://www.apha.org>

Got Case Studies?

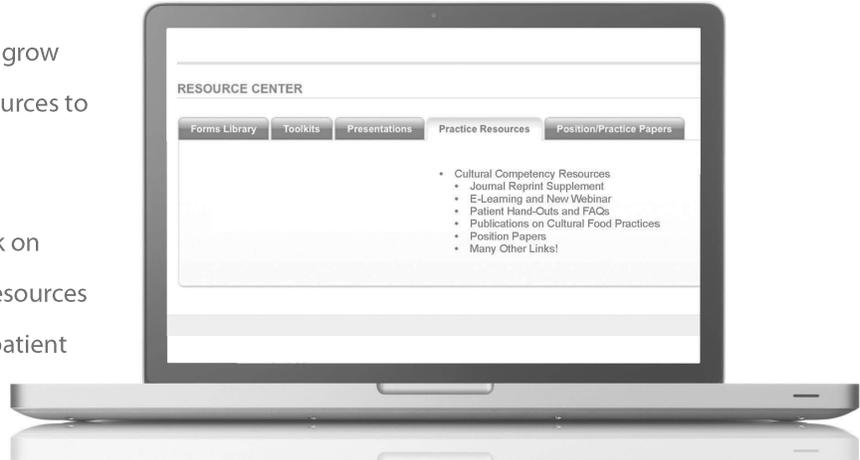
The *Women's Health Report* is looking for contributing authors to share case studies for our future publications

Cultural Competency Resources

As the faces and homes of your clients grow more diverse, ADA has assembled resources to help you stay culturally relevant.

Please visit the **Member Page** and click on **Practice Resources** to see the varied resources ADA has to help optimize your client/patient interactions to ensure the best nutrition care and compliance. And

this site will be updated as information in this emerging area continues—in patient care, accreditation standards and much more!



WIC Works Resource System 10 Years and Still Clicking!

The USDA WIC Works Resource System is celebrating its 10th anniversary this year with the launch of a brand new Web site <http://wicworks.nal.usda.gov>. The changes include a newly designed main Web site developed in accordance with USDA Web Design Standards as well as:

- VENA Village – a new custom designed online resource for browsing guidance, training and implementation materials related to VENA (Value Enhanced Nutrition Assessment). Sit back, relax and enjoy your stay!
- Loving Support Center – a new custom designed online resource for finding breastfeeding promotion and support materials developed by the Food and Nutrition Service. Includes the latest project – "Using Loving Support™ to Grow and Glow in WIC (Breastfeeding Competency Training)." Know you are in the right place for finding loving support for your breastfeeding moms.

The WIC Works Resource System is an online education and training center for staff of the WIC program however other maternal and child health professionals can access this beneficial resource.

Looking for free continuing education credits? Make sure to check out WIC Learning Online, a series of 18 online learning modules on WIC-related topics.

Contact the WIC Works Resource System Team at wicworks@ars.usda.gov for more information.

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SCREENING AND DIAGNOSIS OF ABNORMAL GLUCOSE TOLERANCE Continued from page 8

of possible cases. Either the FPG or A1C needs to be met to identify the woman as having preexisting diabetes. If a random plasma glucose is the initial measure, the tentative diagnosis of preexisting diabetes but must be confirmed with either a FPG or A1C > the threshold using a Diabetes Control and Complications Trial/United Kingdom Perspective Diabetes Study standardized/aligned method.

Table 2. Threshold Values for Diagnosis of Preexisting Diabetes in Pregnancy

Measure of glycemia	Consensus threshold
FPG	7.0 mmol/l (126 mg/dl)
A1C	> 6.5% (DCCT/UKPDS standardized)
Random plasma glucose	> 11.1 mmol/l (200 mg/dl) + confirmation by FPG or A1C

A strategy for detection and diagnosis of hyperglycemic disorders in pregnancy was proposed by the IADPSG (see Table 3). The Sweet Success Guidelines for Care have been under revision due to be released this year. The California Department of Public Health Maternal, Child and Adolescent Health Division has recognized the IADPSG recommendations as the most current and thus the revised Guidelines for Care 2010 will recommend using a single 75-g 2-h OGTT to diagnose GDM and the above procedures for diagnosing preexisting diabetes in pregnancy. As experienced with previous changes in screening guidelines for diabetes in pregnancy, it may take years before ACOG, laboratories and physician practices actually adopt these new thresholds and recommendations, but some perinatologists working with the Sweet Success program in California and members of the IADPSG have already begun to implement a new screening procedure.

The IADPSG recently held their second international conference in Pasadena this past April 2010. A few of the many highlights of the three-day conference included a presentation by Caroline Crowther, MD from Australia who shared her cost analysis study findings indicating the cost

effectiveness of treating GDM. Raul Artal, MD from St. Louis University presented data on life style interventions (diet and exercise) preventing GDM or preventing progression of GDM to type 2. Donald Coustan, MD from Women & Infants' Hospital in Providence, RI reported data from the HAPO study that showed a significant independent direct relationship between increasing BMI and adverse outcomes, even when adjusted for maternal FPG.

Table 3. IADPSG Strategy for Detection and Diagnosis of Hyperglycemic Disorders in Pregnancy

First prenatal visit

- **Measure FPG, A1C or random PG on all**
 - **Or only high-risk women***
- **If results indicate overt DM provide treatment and F/U as for preexisting DM**
- **If FPG > 92 but < 126 diagnose as GDM**
- **If FPG < 92 test for GDM at 24-28 wks with a 75-g OGTT**

* Decision on screening only high risk women to be made on the basis of population and local circumstances.

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THE EFFECTS OF CALCIUM AND MAGNESIUM SUPPLEMENTATION IN PREECLAMPTIC WOMEN Continued from page 4

deficiency (in particular hyperemesis patients, women on lactose-restricted diets, vegetarians, and individuals with poor eating habits).

5. Clinicians should promote the optimal intake of Ca and Mg from foods to maintain recommended levels. Supplements that exceed the UL should be discouraged.

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GOALS OF THE WH PRACTICE GROUP

WH DPG promotes the development of dietetics professionals in the specialty area of nutritional care in women's health which includes preconception through pregnancy and lactation and expanded to late menopause.

The objectives of the Women's Health DPG are:

1. Build an aligned, engaged and diverse membership.
2. Proactively focus on emerging areas of women's health.
3. Impact the research agenda in women's health and nutrition.
4. Identify and influence key food, nutrition and health initiatives specific to women.
5. Increase demand, utilization and reimbursement of services provided by WH members.

"WH members are the most valued source of nutrition expertise in women's health"

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