The Third Generation of Women's Health Facilities

Women's Health has significantly changed from the early definition of just birth, hysterectomy and mammography. Until the late nineteenth century, babies were primarily delivered at home. In the first part of the last century, there were several women's 'lying-in' hospitals, notably in Boston, Chicago and Philadelphia. The concept of the lying-in hospital came from late 19th century London, where these hospitals were principally intended for the "wives of poor industrial tradesmen or distressed house-keepers" and the wives of soldiers and sailors, as the large teaching hospitals at that time did not admit women for births. By the middle of the 20th century, nearly every one of the acute care hospitals in the United States had an "OB/Gyn Unit". The birth-oriented definition of "women's health" did not begin to change until the mid 1980's.

The design of the Obstetrics Unit began its metamorphosis in the late 1970's with the advent of the birthing rooms, then LDR rooms – and the LDRP room, a concept emigrating from South Africa. Other variations of these concepts included Family Care Centers where the post partum units were designed like hotel rooms and units that had mixed design concepts with some LDR rooms and some LDRP rooms. From the late 1970's through today, there has been a conversion of almost every acute care hospital in the nation adopting one of these newer design concepts for their Obstetrics Unit.

The enhanced definition of women's health began in 1985 with the recognition that women's care was very decentralized and fragmented.

The enhanced definition of women's health began in 1985 with the recognition that women's care was very decentralized and fragmented. This recognition converged with the growing female workforce and time became a precious commodity for women who had families, husbands and generally a life outside of work. Outpatient centers with coordinated care, diagnostic centers, education centers, breast and bone health centers, aesthetic medicine centers – all began to emerge in areas of the country where demographics demanded. While some of the care for a particular health problem was now coordinated in one place – total care for the women was only occasionally addressed. Babies and breasts were joined by bones and the menopause movement, but women still had to search, research and navigate various systems in order to maximize their time and outcomes.

What Do Women Want?

What women want with their health care is quality, convenience and individual consideration. Going to a hospital is not typically viewed as a pleasant experience, nor is it considered a place to go for "health" care. Women want information and knowledge for empowerment to participate in the status and delivery of their health and medical care. They want support and direction, with access to options. They want to be respected by the caregivers and they want a value product. They want all aspects of the care delivery by the caretakers and within the facility, to be a pleasant experience.

Marketing to women has significantly evolved over the past 20 years along with physical facility design and the delivery of care. In the 1980's, the emphasis was on mass marketing with the assumption that something would impact the woman, if enough general material were thrown her way. "Tell her, – then assume, that will sell her", was the marketing battle cry!

In the 1990's there was a greater recognition of the woman as a decision maker for health care. And, marketing evolved to become more direct and more targeted to the woman and some of her unique concerns.

Today, the key to marketing to women is to really know the woman as an individual and to meet her unique needs. It is imperative to listen to the customers and learn about them, to maintain a continuing relationship. Does not Amazon.com send a little message each time there is a new novel by an author whose book you have previously ordered? This is a way of maintaining a cyber-relationship with their customer. They track the purchases of each of the customers and gently inform them of "new and exciting" potential sales.

The Third Generation of Women's Health Care facility will work with each woman to develop a lifestage plan of health and care delivery that can be monitored and measured. The higher the degree of intra-referral within a health care system will be a hallmark of success for this Third Generation Women's Health Center. There must be symbiotic and coordinated efforts with the Women's Center and the other centers of excellence in the system, to insure that there is continued ease of navigation for the woman who is utiliz-

ing other medical services, when she leaves the women's center.

THE EXPERIENCE ECONOMY AND OTHER FACTORS DRIVING THE THIRD GENERATION

In 1999, Joseph Pine and James Gilmore wrote a book called The Experience Economy, which was an extension of an article they wrote for the Harvard Business Review. This "Economy" was premised on observations that our society was willing to pay a premium for an "experience" that surrounded an activity. The book relates that "you are what you charge for. And if you are competing solely on the basis of price, then you've been commoditized, offering little or no true differentiation." They challenge the readers to find out what their customers would value—and for what, would they pay a premium?

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For instance, a cup of coffee probably costs $1.00 when purchased at a drive-thru. But, because of significant discretionary income, Starbucks has proved that we have a willingness to pay $4.00 for a cup of coffee at a place that is comfortable, has a fireplace and incorporates more ambiance than a drive-thru – so it becomes an experience. This type of economy has given rise to many new businesses such as the Atlanta or Panera Bread Companies, where the average lunch cost $2.00 more than at McDonald's – but there is a perceived quality and desired environment, and therefore, it becomes an experience – shared with a friend or business associate.

The health industry has not recognized the importance of these economics to any significant degree yet. It is the buying power of women that can provide the vanguard position for the delivery of health care services – in an environment that creates an experience. The women's health facility that is easily navigated, convenient, and pleasant, offering her a warm, fluffy robe and cup of herbal tea while she waits in her aromatic, nicely appointed waiting room, with a laptop DVD for some quick education – is an experience that she will tell her friends about. Particularly if she is treated with dignity, her time is valued, her results are given to her so she can take them home with her and she has the ability to access an action plan to improve her health status.

Additional key drivers that are propelling the advancement of women's health programs and facilities are:

~ **Changing tidal wave of demographics throughout the world**. Although births remain high (around 4 million annual births in the United states each year) the fertile age population of women is dropping in most areas of the country. The Middlescence group of women (age 44-65) are the baby boomers that helped change the design of birth facilities in the 1980's and they are now the group of women that plan to change the design of health care facilities for their age segment and others. They want many more services to be available to them to assist them to maximize their health status for the duration of their lives.

~ **Availability of discretionary dollars.** More than ever before, because of their age pockets and life status and the fact that so many women are working and have broken some glass ceilings with their salaries – they have access to discretionary dollars. Aesthetic medicine, botox parties, and spa treatments have been on a geometric growth pace. The health care industry has been slow to capture these dollars and if they can create an "experience" along with a treatment, many women are there to pay that premium for their "half-day of health and half-day of beauty".

~ **A positive future for the next 40 years of philanthropy.** At no time in history, have more people been in a position to be bequeathed the amounts of funds that are projected to become available. Although the economy is currently in a "turn-around" position, it is anticipated that philanthropy will increase significantly over the next 40 years. The "transfer of wealth" by the year 2043 has been estimated to range between $40 trillion and $100 trillion. The persons who have access to such wealth will be in a position to donate to foundations that service women and children's health concerns – as witnessed by the Bill and Melinda Gates Foundation.

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Many of these potential donors are still part of the "me generation" – and they will want to have visible remembrances of their generosity. This is a key driver for "Signature Designs" for Third Generation Women's Health Centers. Health care organizations that want to tap these dollars will be required to venture beyond traditional methods and establish partnerships with the donors. They will need to focus on compelling ideas, signature facility designs and new opportunities – not just organization needs.

~ **The critical need for more efficient building designs.** The nursing shortage, the high cost of health care personnel, the need for flexibility for growth and change, the steady progression of technology and the need to produce more revenue per square foot, are some of the reasons that are challenging architects to produce efficient and innovative structures. In an effort to allow habits of care delivery to change, the Third Generation facility must be unique – and provide for unique and effective methods of care delivery. The delivery of care as a premium value in the perceptions of the woman is key to her experience and the building must take the needs of the staff into consideration, so that their "experience" of delivering the care is maximized.

~ **Cognitive Dissonance is still a factor in determining individual health status and compliance.** While we may know what is the right thing to do relative to our health – our actions do not correspond. We know that exercise is the right thing to do – but we do not always do it. We know that smoking is not good for our health or the health of others, but 23% of Americans still smoke. The Third Generation facility and its services must be unique enough that it participates in provoking a change in the behavior and habits of the women, in addition to changing her attitudes through education.

~ **The access to the Internet and its unlimited Knowledge Bank of Health Care Information.** Women can quickly share information and experiences from across the nation, and they will want to have the best available in their communities.

~ **Personal Health Care Strategies.** While this is a relatively new concept, women are developing strategies by year or by lifestage as to the types of services they plan to access (and pay for with their discretionary income!). Whether these strategies are based on their desire to stay healthy or to optimally age or to enhance their health status – they are planning to proactively work on themselves. The leadership for the development and growth of these services in the community belongs to the Third Generation Women's Health Center.

~ **Technology and gender-specific research.** Technology is only going to make the health care sys-

tem better. Technology to improve the quality and convenience of health and medical delivery – access to key information — access to information quickly – access to less costly information and access to up-to-date, state-of-the-art information – will be the status quo of the Third Generation facility. There will be no debate about whether or not to include digital equipment, PACS, bedside technology with an electronic medical record, wireless tablet computers, smart card access to records, paperless systems, instant registration or a woman's home access to update her health record, in a Third Generation facility. The digital transformation is accelerating as a direct result of the labor shortages, quality assurances and the anticipation of a wave of volume, due to the aging of the population. HIMSS (Healthcare Information Management Systems Society) estimates that those hospitals that are the most technologically advanced have a 10 to 30 percent lead in financial and clinical performance.

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Signature Services for the Third Generation Women's Health Care Facility

Signature Services are those that are unique to a facility or program – those services that represent the goals and mission and meet the needs and desires of the women, who are in the targeted markets of the health care system. Many women's services are amoebic in that they ebb and flow into other services lines of the hospitals. Most outpatient women's services can be specifically defined as part of the women's service program, with the possible exception of advanced cardiac diagnostics and rehab. Signature Services of a Third Generation Women's Health Facility would all be delivered in a wholistic manner and could include:

- Inpatient services
- Inpatient and outpatient surgery
- Diagnostic Services
- Heart health and diagnostic Services
- Breast and Bone Health Center
- Skin Care Center
- Dental Health services
- Endocrinology and Metabolic Center
- Continence Center
- Female Cancer Services
- Aesthetic Medicine Center
- Center for Futuristic Technologies
- Optimal Aging Coordination Center
- Gastrointestinal and Bowel services
- Pain Management Programs for specific programs such as chronic pelvic pain, fibromyalgia, back and neck pain, myofascial pain and headache
- Spa Services or a Medi-Spa
- Education, Lifestyle and Fitness programs including Signature Events each year
- Psychological services and support programs for domestic violence, sexual assault, depression and anxiety disorder
- Support group services
- Complementary and Alternative Medicine (CAM) programs such as acupuncture, massage, biofeedback and nutrition counseling
- Retail Services that could include: places to eat, a small convenience store, cleaners, banking services, a bookstore, florist, pharmacy, travel shop, optical shop, hair and nails shop, CAM items, comfort items, cancer recovery items, brand name stores that promote health such as Aveda and possibly disease specific types of stores i.e. diabetes food stores

Wellness services on a lifestage continuum that could include:

8 Key Wellness Areas of Women's Health

Skin & Bone Wellness

Spiritual, Energy, Relationship & Intellectual Wellness

Heart Wellness

Nutrition & General Wellness

Hormone Wellness

Brain & emotional Wellness

Optimal Aging Wellness

Details of these wellness services follow:

Skin and Bone Wellness

Suggested Areas of Interest for Development

- Sun Damage—derma scan facial screen to assess the condition of the skin
- Skin cancer total body assessment
- P-Scan for Osteopenia and predisposition for Osteoporosis
- Bone risk assessment and bone scan
- Plastic Surgery Plan and Options (for later referral to physicians)
- Alpha-hydroxy facials for fine line removal and acne
- Diagnosis and prevention of adult acne
- Hair removal by laser
- Hair loss treatment
- Arthritis pre-disposition and prevention
- Back clinic – exercise and prevention of back problems

Spiritual, Energy and Intellectual Wellness

Suggested Areas of Interest for Development

- Self-nurturing assessment and plans — for use of complementary medicines
- Yoga, Tai Chi, meditation
- Spiritual wellness assessment
- Risk assessment for moodiness, fuzzy thinking and general unhappiness
- Study of relationship health
- Stress level assessment and stress management

Heart Wellness

Suggested Areas of Interest for Development

- Health risk appraisal – determination of health risk age vs. chronological age
- Lifestyle assessment for stress determination
- Documentation for optimal aging programs
- Fast CT scan (the new test for calcification of arteries – which does not require a physician's orders)
- EKG with a copy of the results in the woman's possession
- Cardiovascular tests/strength analysis/flexibility tests

...the Third Generation facility must be unique – and provide for unique and effective methods of care delivery.

- Lipid profiles, triglycerides and stress test
- Blood Pressure monitoring
- Stress and Coping risk assessment
- Education about the symptoms of a heart attack for women, as it differs for men
- Determination of anger scales with treatment of behavior modification to decrease hostility and anger
- CBC (check for Anemia)
- TSH Level (check for hypothyroidism)
- Homocysteine levels – a high level can be treated with folic acid
- A stethoscope which accentuates the heart sounds should be available to women so they can hear their hearts and check for atrial skips, etc.
- HIV home tests distribution
- Programs to achieve target heart rates

Nutrition and General Wellness

Suggested Areas of Interest for Development

- Physical measurement and interpretation of clinical values (HDL, LDL, etc)
- Analysis of 75-nutrients/ identification of supplement requirements
- Determination of Body Mass Index and metabolism rate assessment
- Complete dietary analysis
- Putting together a list of questions to take to the physician in anticipation of your annual exam
- Daily wellness record management for objective achievement
- Muscle strength/endurance and general fitness measurement
- Cardio-respiratory (aerobic) fitness assessment
- Flexibility assessment
- Body fat and composition
- Healthy menu planning and cooking lessons (includes dining out information)
- A tailored exercise and nutrition plan designed for each woman based on her lifestyle
- Emotional Eating assessment
- Eating disorders and weight management
- Use of nutraceuticals and supplements
- Vision Acuity and Hearing Tests

- Driving qualification test for the older woman
- Dental hygiene
- Asthma – Baseline peak flows/spirometry

Brain (Behavioral-Emotional) Wellness
Suggested Areas of Interest for Development

- Stress assessment and management
- Depression screening and support groups
- Anxiety Disorder assessment and biofeedback
- Lesbian health risk assessment
- Alzheimer's diagnosis and care coordination
- High Blood pressure monitoring
- Signs and symptoms for stroke prevention

Hormonal Wellness
Suggested Areas of Interest for Development

- Gestational Diabetes information and monitoring with a glucometer
- Blood sugar for Diabetes pre-disposition, screening and prevention
- FSH and testosterone levels for Menopause systems
- Supplementary menopause clinic with compounding pharmacist and nurse and nutritionist
- Continence – Biofeedback and other treatments – "Protecting the Pelvic floor area"
- Contraception and education about choices
- Discreet tests for STD
- Genetics testing and counseling
- Pregnancy tests – ovulation tests and information
- Immunizations
- Urine screens for urinary tract infections
- Sexuality – test for loss of sex drive

Cancer Early Detection/Prevention/Treatment Wellness
Suggested Areas of Interest for Development

- Smoking cessation – easily obtained nicotine gum, Wellbutrin and other anti-smoking measures
- Fast CT scans for the early detection of cancers

Technology to improve the quality and convenience of health and medical delivery – access to key information — access to information quickly – access to less costly information and access to up-to-date, state-of-the-art information – will be the status quo of the Third Generation facility.

- Monthly breast self exam teaching
- Skin cancer risks and tests
- Mammography
- Fecal occult blood test or GUAIC cards for colon cancer
- BRCA analysis with genetic counseling
- The home kit for the determination of HPV in the cervix could be distributed

Optimal-Aging Wellness
Suggested Areas of Interest for Development

- Driving qualification test for the older woman
- Self-nurturing concepts
- Myriad Aesthetic Medicine options
- Spa services
- Stress reduction services
- Eastern practices
- Nutrition and weight management counseling
- Fitness assessment and exercise
- Health assessment and programs for health enhancement
- Sun damage—derma scan facial screen to assess the condition of the skin
- Skin cancer total body assessment
- Plastic Surgery plan and options (for later referral to physicians)
- Alpha-hydroxy facials for fine line removal and acne
- Diagnosis and prevention of adult acne
- Hair removal by laser
- Hair loss treatment

The Signature Facility – Essential Elements of the Third Generation Women's Health Facility

Designing a hospital is like designing a home, a place where life begins and continues with dignity, grace, privacy and discretion. The special needs of women and infants must be served through design of the healing environment by promoting the family-centered

environment within a sanctuary of caring. Indeed, the link between the facility's environment and its delivery of care is as inherent as the bond between mother and child and sensitive as indicated by the startled response of an infant to his or her surroundings. For this White Paper, selected conceptual elements of the new Women and Infants' Pavilion at Arnold Palmer Hospital (APH) have been selected to comprise the case study as a Signature Facility of the Third Generation Women's Health Facility.

Administration and staff at APH truly believe in serving the needs of its customers and realize the importance the quality of design of the facility itself. They also understand the need for operational efficiencies, which has been quantified for the design of the new Women and Infants' Pavilion at APH making it function unlike other hospitals. Upon completion of schematic design in September 2002, the Women and Infants' project core planning team and its architect, Jonathan Bailey Associates, analyzed the proposed plans for the new construction project in order to benchmark overall efficiency of the building. The total departmental gross square footage (DGSF) for the building was calculated at 266,246 square feet (SF), whereas the building gross square footage (BGSF) totals 341,374 SF. These factors yielded an impressive 78% net area for the building, including the departments' built-in circulation and other factors such as wall partitions and local mechanical needs. The remaining 22% of the building's gross floor area (GFA) is comprised of mechanical plant rooms and vertical and horizontal circulation. This optimum level of building efficiency ranks well above national and international comparators, which are usually in the range of 35-40% of the GFA.

Jonathan Bailey Associates and the facility users – the design team, achieved an efficient hospital layout in a number of ways. The project employed the principle of vertical design as an overall strategy to reduce redundant corridor space. Via the central elevator core or circulation spine, the layout of the floor plan provides equidistant travel distances from this central core, which compares favourably with the more traditional hospital "racetrack" designs that create lengthy horizontal movement. Combining main lobby functions with the dining area is another way that the design reduced area while making the environment patient-visitor-friendly.

If done effectively, the best way to achieve overall efficiency in a hospital building is by the design of the nursing unit, because it repeats. At the outset of the design process, healthcare architect Jonathan D. Bailey, NCIDQ, NCARB, AIA, President/ CEO of Jonathan Bailey Associates, evaluated many nursing unit configurations with the caregivers and users. Criteria were agreed and prioritized based on functionality and operations as well as patient-centered care. Flexibility of nursing aggregates and ratios for future trends was as important as the ubiquitous need for unobstructed views and observation. The result of the evaluation emerged in the form of a "cloverleaf" consisting of three 10-bed, circular modules rotated around the elevator core. This efficient, circular configuration not only reduced the GFA for a typical 30-bed unit, but also reduced total surface area of the external wall while providing for more window area for patients – clearly a "win-win" situation.

Most agreed that in the long-term, providing capital savings (for the construction of the project) would be overshadowed by the costs reduced from operational savings. Therefore, the design warranted functional flexibility, multi-use spaces, reduced travel times, and strategically placed nurses' stations to reduce staff needs. Furthermore, at any time, one or more of the 10-bed modules comprising the "cloverleaf" nursing unit can be converted to a higher acuity or "step-down" unit, simply by locating a nurse base in the center section of the circular module, which is originally designed as an open space with work stations at the entrance of the patient room. These are just a few ways in which the design for the new facility was prepared for the "long haul".

The concept of "hot-disking" through a suite of technologies that enables wireless LAN's, proximity cards, single log-on to personal environment was introduced in the design, enabling more effective use of the space available, particularly with regard to its teaching facility and office accommodation. It enabled ease of access to necessary IT systems and information while maintaining the required security levels; and it will create a more open and collaborative working environment. In a wider context, this flexible working approach significantly reduces traveling time for doctors and nurses, enabling them to work where they are required rather than where technology exists. Moreover, this flexible working environment allows current working practices to change for the better by allowing users access to systems and information that they need from multiple locations. Ultimately, it would enable the APH to further rationalize space and facility assets.

The users at APH agreed that the greatest waste of time in most hospitals is spent walking within and between departments and down corridors. Thus utilizing a rapid vertical lift transportation system from the central network of elevators to reduce travel distances so that care providers work effectively and reduce wasted time was promoted. Over time, doctors and nurses

could treat more patients, while support services could provide better and faster with less staff. In the redevelopment of APH this was important. Both the new Women and Infants' hospital and the existing children's hospital are sharing support services, including dietary, materials management and environmental services to name a few. The design accounted for optimum locations of these services without compromising functional relationships and clinical adjacencies. Because the support services are located in the new and existing buildings, it was paramount that the vertical transportation system in the new Women and Infants' facility be state-of-the-art. Such technology would expedite transport time so that the time it takes to travel the physical link to the existing children's facility can be accommodated without requiring an additional allowance of time for staffing.

The facility also was designed for vertical and horizontal growth. Over time, the plan is to expand eastward into a "brown-field" site, which will augment functional capacity of the facilities in the podium levels such as education, support services, NICU and L&D. In turn, this eastward expansion of the podium would allow the opportunity for women's emergency services to expand into the residual areas vacated from the expansion. The verticality of the design also maximized FAR (floor area ratio) for the site, which provides the new Women and Infants' center with the opportunity to build an integrated medical office building (MOB). The roof of the podium (level four) allows for additional operating rooms for gynecology services. There also is the option to build "shell" space as the upper floors of the nursing tower for future growth in the form of conference facilities and/ or inpatient accommodation.

Designing a hospital is like designing a home, a place where life begins and continues with dignity, grace, privacy and discretion.

The design separated different functional foot traffic within the building into "on-stage" and "off-stage" environments. On-stage space is to accommodate public, visitors and outpatients, and will contain a higher specification of finishes and furnishings such as stone flooring and carpeting but that meets healthcare standards for interior design. Off-stage space is to accommodate staff, inpatients and support services, and will contain finishes and furnishings that are more clinically orientated with higher levels of maintenance specifications. There are spaces however that will accommodate both on and off-stage, such as the patient room and the nurse base. In these instances, the level of finishes and furnishings are to be considered on-stage.

Design guidance for on-stage and off-stage environments within the hospital is applied to vertical transportation as well, where the separation of flow is expanded to three types: (1) public/ outpatient, (2) staff/ inpatient and (3) support services. This tripartite approach ensured that a patient's privacy and dignity would be addressed and issues of Infection Control can be accounted for, while minimizing travel distances for both patients and staff. This approach also created an easier way-finding strategy for visitors and outpatients who may not travel to the hospital on a regular basis.

Attention to the healing environment is a requirement and good business practice. Having such an efficient building not only facilitates efficient operational flows, which improves productivity, it in turn delivers a higher degree of care to the patient. Every element of the APH design – from the location of services to the layout of the facility – is aimed to maximize comfort and convenience for patients. Equally imperative is the requirement to improve care by focusing on environmental and comfort factors for patients, staff and visitors – emphasizing how the environment feels, not just how it functions. The design therefore will promote the creation of a non-institutional environment that supports and aids the healing process rather than hinders it. First impressions of the hospital will be fostered by the experience of going through the main entrance to the centerpiece – a two-story, glass encased atrium with artwork, landscape elements and a piano setting the mood for open dining, shopping, educational conferences and special events such as fashion shows. This space will be welcoming – creating a warm environment that communicates wellness not sickness. The lobby space will be the heart of the facility acting as the interface between the community and the hospital.

The interior of the facility's lobby space, departmental areas and the on-stage corridor network will be designed to be "light and airy" and will appeal to all the human senses, not just sight. The effect of all the senses, including smell, hearing, taste, etc., will have a significant impact on the creation of a healing environment. Anxiety and stress levels of patients, visitors and staff members will be reduced by the creation of a caring sensitive environment. For example, tradition-

ally designed hospitals use hard surfaces for flooring to maintain sterile conditions. Modern carpets can now meet the guidelines for cleanliness but importantly absorb and deaden the harsh “institutional” sounds experienced in most hospitals.

It is also becoming evident that something with such intangible properties as fine art has measurable effects on the outcome of the illness – or at least on the manner in which the patient is empowered to cope with that illness. The design therefore will incorporate a Healing Art ambiance into the interior design. For patients whose elevated stress levels lessen their ability to deal with external stimuli, art selected for aesthetic value alone may inherently be difficult and confrontational. However, art for the healthcare setting must be patient-oriented and therapeutic in nature.

Artwork at APH Women and Infants' pavilion will be familiar, comfortable and inspirational not only to the community in general that a facility serves, but also by each patient population treated. Part of the healing quality of art is the harmony that it contributes to the healthcare environment – in drawing the eye away from long corridors – from frightening-looking equipment – from signage that reminds them all too realistically where they are. Just as carpets, wall-coverings, fabrics and furniture must work with architecture as part of patient-centred design, so must art. It must be skilfully incorporated to become part of the patient's positive sensory experience.

Research also has established that control or “choice” reduces stress. In a secured and controlled environment such as a hospital, it is important to enhance the mood of the place with serine qualities of lighting, landscape and the positive distractions stimulated by sensory experience. In the Women and Infants' hospital, this quality will be achieved so that the intrinsic desire of choice can be further appreciated and valued by all users of the facility. Obvious opportunities for retail are in the design as well as a day spa and an education/ conference center. Additional features such as those listed on pages 13-14 are being considered. Moreover, the mundane ability to control the temperature in the room and the lighting level will be afforded. Even the ability to order content of the meals from the room in “real-time” will benefit the patient, who will experience less stress and heal more quickly.

Ultimately, the design of the unique “cloverleaf” nursing unit will provide the patient care environment with a level of privacy and dignity, while maximizing observation by staff – this is the fundamental concept for the delivery of care. The use of natural light and provision for larger rooms combined with designated space within for visitors also will support the physiologically and psychologically needs of the patient and family in terms of care delivery and a supportive environment.

Moreover, this flexible working environment allows current working practices to change for the better by allowing users access to systems and information that they need from multiple locations.

It is not irresponsible to say that general public perception of the quality of healthcare services delivered by the new Women and Infant's pavilion will be based, to a significant degree, on its physical appearance. This perception is okay, because what goes on “off-stage” is as important as what is “on-stage”.

Signature Characteristics of a Third Generation Women's Health Facility would include:

- A coordinated, choreographed total patient experience for all services
- Pleasant and educational diversions throughout the facility – they can be subversive and embedded in all hospital spaces – tucked in the spaces between the places where people move from place to place, talk, carry pieces of paper, type, play messages, pick up the phone and go to lunch – this is where many critical and often invisible things happen.
- Convenience items such as valet parking, in-room check-in, 24-hour room service and a business center
- A wellness model vs. a medical model of care delivery
- Privacy and dignity are signature concerns
- Significant thought that goes into not only how to make the volume targets – but also into the degree of flexibility that allows you to handle the exceeded projections
- Provides an environment where technology is an

organic element, allowing for healing and learning to occur simultaneously
- A staff that understands the business of women's health
- Gender-specific services are delivered
- Non-operating revenues are pursued
- True healing environment is part of the interior architecture
- Feng Shui is utilized to allow energies into the facility
- Services are integrated and wholistic by definition and design
- Provides services for all lifestages of a women
- Emphasizes education and knowledge and empowerment
- Encourages partnership in care
- Track data and know the individual needs
- Capitalizes on intra-referral to the health care system
- Cutting Edge technology is available
- Not premised on what managed care will pay

Signature Elements of a Third Generation of Women's Health Facility Design

- A healing garden in a natural setting, including pathways for patients, visitors and community residents
- Activate nature by utilizing parks and other green spaces
- Minimization of non-revenue generating spaces
- Efficiency of design so that only volume related staff increases are needed
- Design promotes increases in staff productivity and satisfaction
- Flexible and multi-purpose rooms
- Interior and exterior design engages the senses
- Interior and exterior design are visually daring
- A strong human connection in the design
- Ethnic facility concerns addressed
- Select services are miniaturized in recognition of technologies available
- The building must represent something meaningful – be themed – be welcoming
- The building must be efficient and logical to those who work in it – support it – live in it – travel in it
- Interior and exterior architecture must be based on rhythm and logic
- Interior architecture must incorporate healing concepts and wholistic health needs
- The building must incorporate available technology and allow for technology that is not yet available
- Every element of care delivery should be challenged and the design should reflect and support the innovative operations
- Do not design for the average – Design for the individual

Measurable Design Efficiencies

The most significant opportunity for performance efficiency in the signature women's health facility is through the design of the nursing unit. Nursing unit designs have evolved through the decades, the focus changing from natural light and ventilation of the 1940's, through improved support space in the 1950's, to good expansion potential in the 1960's, to short travel paths and good patient visibility of the 1970's and 1980's to clustering of patients in the 1990's. With a growing nursing shortage and an aging nursing workforce, the focus of the Third Generation Centers must be on supporting the nursing staff to be efficient.

Today's Nursing Unit Evaluations are improving the prototype acute care hospital. The Evaluation's criteria includes:

- cost effectiveness
  - expansion capability
  - overall square footage and support space
  - amount of exterior wall (linear feet)
- improved productivity and efficiency
  - staff flow (travel distances)
  - amount of circulation
  - control of public entrance on unit
- measurements
  - staff circulation
  - square footage for support areas
  - maximum travel distance from nurses' station to patient door
  - exterior wall (linear feet)
  - square footage per floor
  - square footage per bed
  - average distance of nursing unit to patient
  - average distance of utility room to patient room door
- ability to:
  - add small numbers of patient rooms
  - control public/patient rooms and public/nursery
  - interface with elevator core
  - interface with other nursing units
  - include nursery

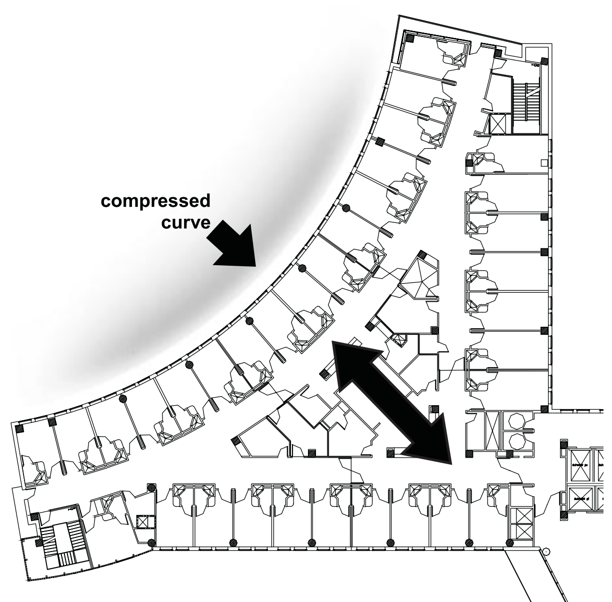
- allow horizontal growth by adding adjacent bed units
- include mechanical rooms

Design Evolving from the Nursing Unit Evaluation

Always testing the criteria of the Evaluation in user-group design sessions for hospital projects, healthcare architect Jonathan D. Bailey, NCIDQ, NCARB, AIA, President/ CEO of Jonathan Bailey Associates, modified the development of the notable triangular nursing unit in a facility design for Health Central in Ocoee, Florida. In this design, Jonathan and the hospital's nursing staff eliminated excess central support space by compressing the area with the curved hypotenuse of the triangular form along which patient rooms are located. To optimize observation and patient access, an open-planned nurses' station was created for the center of the unit integrated with a shift change conference area. This strategic location also maximized security on the unit by allowing the entrance from the central elevator to be easily monitored.

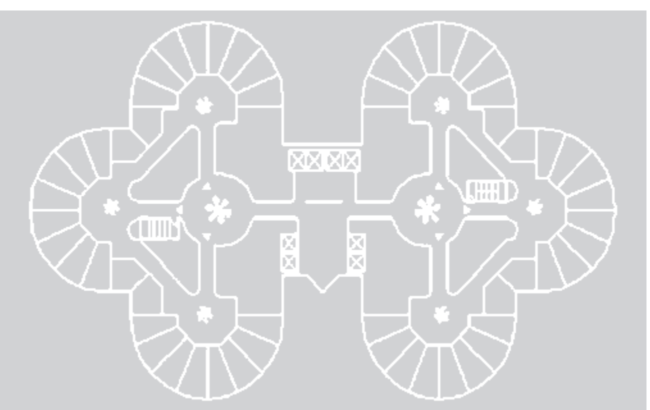
The most significant opportunity for performance efficiency in the signature women's health facility is through the design of the nursing unit.

As Health Central grew, so did its maternity services. To complement the modified nursing unit illustrated above, Jonathan Bailey worked with the Hospital to develop a new maternity (LDR) unit, which prompted his re-exploration of the circular pod design at a smaller scale than that which he did at a notable Children's Hospital in Connecticut. Unobstructed observation from the nurses' station and reduced travel distances were key elements in the design.



Modified triangular unit at Health Central, Orlando, Florida, (circa. early 1990's)
Jonathan Bailey Associates is currently working with Health Central to expand its diagnostic and treatment services.

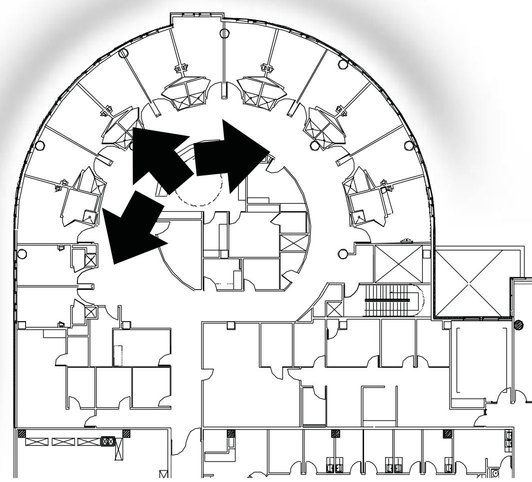
In the late 1990's, Jonathan Bailey explored ways to make Health Central's circular pod design (its LDR Unit above) work at a larger scale to accommodate larger bed numbers. With user-groups designing Florida Hospital Waterman's new replacement facility in Tavares, Florida, Jonathan created the "cloverleaf" configuration, consisting of two 30-bed nursing units each consisting of three 10-bed, circular modules (see illustration below).



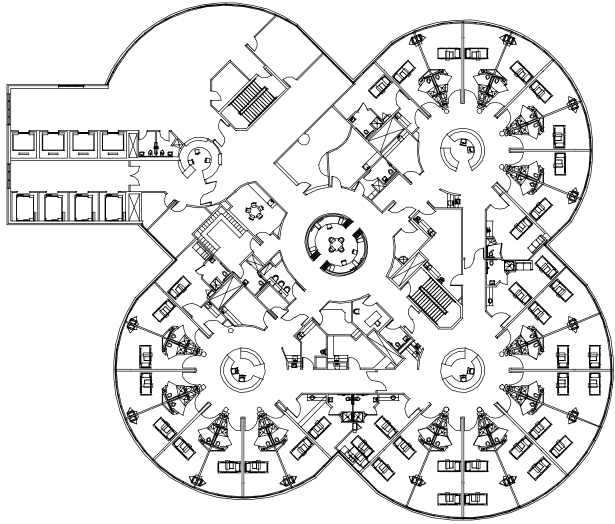
Jonathan Bailey Associates was the lead designer on the Waterman Project. Jonathan Bailey Associates and FDS International were the design architects.

The two units centered on the elevator core for both public and direct service/ staff access. This efficient, circular configuration not only reduced the GFA for a typical 30-bed unit, but also reduced total surface area of the external wall while providing for more window area for patients – clearly a "win-win" situation.

In 2000, Jonathan Bailey took this concept and applied it internationally, to test its operational aspects in middle-eastern culture. For Cairo Children's Cancer Hospital in Cairo, Egypt, the unique "cloverleaf" design was modified in the form of a single tower element. Its functional flexibility, reduced travel times and strategically placed nurses' stations to reduce staff needs, multi-use spaces, and embedded family areas are just a few design aspect that appealed to facility users. Moreover, at any time, one or more of the 10-bed modules comprising the "cloverleaf" nursing unit



can be converted to a higher acuity or "step-down" unit, simply by locating a nurse base in the center section of the circular module, which is originally designed as an open space with work stations at the entrance of the patient room. Indeed, one of the 10-bed modules is being used as a Bone Marrow Transplant (BMT) Unit.



Cairo Children's Cancer Hospital is currently under construction.

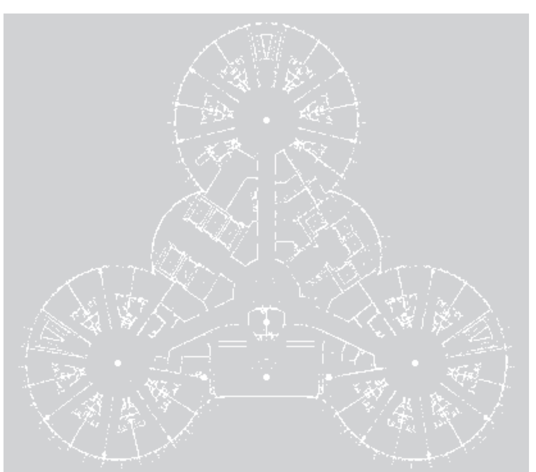
In early 2002, Jonathan Bailey and the nursing staff for Arnold Palmer Hospital's (APH) Women and Infant's pavilion in Orlando, Florida, created a unique nursing unit configuration for the facility's post partum and gynecology inpatient services. It was derived from the template designed for Florida Hospital Waterman and Cairo Children, and was well-suited for the way in which the nursing staff for these services worked. APH's modified "cloverleaf" concept has been created in the form of a single tower element within which is embedded two elevator cores – one for the public and the other for staff/ service functions. The layout of the unit provides incredible efficiency for the nursing and support staff. Its patient rooms furthermore provide patients with maximum daylight and views.

The modified "cloverleaf" configuration scores well in most all of the Evaluation's criteria. Research indicates that one-fourth to one-third of a nurses' time is spent walking from the nurses' station to patient rooms. The existing nursing units at APH Children's (and Women's) Hospital had distances of 80 – 116 feet from the nurses' station to the farthest patient room. With the new unit design above, it is approximately 64 feet from the central station to the farthest patient room, and it is estimated that 10-20% of the nurses' time will be re-captured with this unit design.

In an effort to quantify (from an FTE and staffing dollar perspective) the efficiency of this design when compared to several options, a staffing plan was identified for three design options and compared to the current staffing levels. The table below shows the results.

While the number of caregiver FTE's would be driven by volume and acuity, the number of fixed and support staff was purely driven by design. The 26 bed pod design forced the need for four floors of post partum rooms, which significantly increased the number of fixed FTE's required. It was the most expensive option of all. While the 36-bed racetrack design required the same three floors as the cloverleaf design, the design itself drives a requirement for a much larger fixed FTE support staff. The most efficient design of all and the one that did not add fixed support FTE's, is the cloverleaf design planned by Jonathan Bailey. Key factors that will support this very efficient design include:

- Patient placement – designated cloverleaf pods need to be kept full with specific planning for where patients are placed and which rooms are assigned last.
- Documentation and medication locations need to be near the patient rooms (where the nurse should be)
- IT and ancillary support need to plan operationally to support keeping the nurse at the bedside
- There needs to be change management support for staff during the transition to the new design



APH Nursing Unit

	Current Unit 24 Beds 3 Floors	**Pod Design 26 Beds 4 Floors**	**Cloverleaf Design 36 Beds 3 Floors**	**Racetrack 36 Beds 3 Floors**
Caregiver	1:4 couplets	1:4 couplets	1:4 couplets	1:4 couplets
Nursery Nurse	1 per floor	+4.2 FTE's	No change	No change
Float	1 per floor	+4.2 FTE's	No change	No change
Tech	2 techs per floor	+8.4 FTE's	No change	+12.6 FTE's
Charge	1 per floor	+4.2 FTE's	No change	No change
Lactation Consultant	1 per floor	+4.2 FTE's	No change	No change
Secretary	1 per floor	+4.2 FTE's	No change	+12.6 FTE's
Estimated Additional FTE/Salary $	Current	29.4 FTE's $960,960 annually	No additional	25.2 FTE's $524,160 annually

COMPLETED BENCHMARKS:
THE FIRST FOR THE THIRD GENERATION OF WOMEN'S HEALTH FACILITIES

Northside Hospital's Women's Center in Atlanta, GA

The Aurora Women's Pavilion in West Allis, WI

Scottsdale Healthcare Shea in Scottsdale, AZ

Baptist Memorial Hospital for Women in Memphis, TN

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