A Standardized Case Study Framework and Methodology to Identify "Best Practices"

Dina Battisto, Deborah Franqui

Clemson University, Clemson, SC

ABSTRACT: A review of the literature reveals limited information on how to conduct a facility-based case study yielding useful information for architectural practice. In the wake of an "evidence-based design" movement, it is imperative for architects to think about case study research within a performance-based framework that links design decisions to measurable outcomes. Building on this premise, the objective of this paper is to argue for a standardized approach for case studies, present a framework and methodology providing guidance on how to conduct case studies, and conclude with an example. A six-step case study research process is presented including the purpose and activities for each step as well as possible deliverables. The authors claim that a standardized case study approach would allow for cross-case comparisons using a set of performance indicators. A desired end goal of case study research is to develop a facility database that could be used to inform the development of design guidelines, rules of thumb and "best practices."

KEYWORDS: case study, best practices, facility, methodology, primary care

INTRODUCTION

Clients are looking to architects for information, knowledge and the best possible design solutions when planning healthcare facilities. While architects are notorious for using case studies to capture building precedents and "best design practices", there is currently no publicly available resource in the architectural literature that captures facility case studies using a standardized framework and methodology. Therefore, it is not possible to systematically compare facilities across multiple cases. While architects may archive facility information from past projects, this historically has been proprietary information and not shared publicly. As a result, a client is limited by the expertise of one architectural firm. To address this knowledge gap, this paper proposes a standardized case study framework and methodology for facility investigations that allow for cross-case comparisons based on a set of performance criteria. Utilizing a consistent methodology and format will allow for the development of a facility database that could inform design guidelines. This paper is organized into three sections. The first section argues for the importance of a structured, performance-based approach to conducting facility case studies in architecture. The second presents a framework and methodology for conducting case study research including the approach, process and methods. In the third section, the proposed case study model is applied to a common healthcare building typology, primary care clinics.

A review of the literature on case study research in general provides useful guidance on how a facility-based case study might be conducted. Case study research has been defined as a strategy of inquiry, a methodology or a comprehensive research strategy (Yin 2009). Yin (2009: 21) suggests that case study as a research method, "offers a way of investigating an empirical topic by following a set of prescribed procedures." In comparison, Creswell (2007: 73) writes that case study research can be "a methodology, a type of design in qualitative research, or an object of study as well as a product of the inquiry. He continues to say that case study research is a qualitative inquiry where an investigator explores a clearly defined system (a within case analysis) or multiple defined systems (a cross-case analysis) using multiple sources of information such as interviews, observations, documents and artifacts. In addition, Punch (2003: 144) claims that case study research "aims to understand a case in depth in its natural setting, and recognize its complexity in the context." He continues to say it has a "holistic focus that aims to preserve and understand the wholeness of the case" (p. 144).

Depending upon the objective of the case study, the researcher often will conduct "purposeful maximal sampling" (Creswell 2005) leading to a "holisitic analysis" of an entire case or an "embedded analysis" of a specific aspect of a case (Yin 2009). Table 1 provides a brief summary of three types of case studies noted in the literature.

Table 1: Types of case studies

PURPOSE	CASE STUDY TYPES		
	Intrinsic	Instrumental	Collective
	Focuses on the case itself because the case is unusual or unique	Focuses on an issue or concern then selects one bouded case to illustrate a case description	Uses the logic of replication by using multiple bounded cases to discover case-based themes

Source: Adapted from Creswell (2007) and Yin (2003).

A PERFORMANCE-BASED APPROACH TO FACILITY CASE STUDY RESEARCH

The position the authors take in this paper is that case study research is an essential component to support client expectations toward evidence-based design (Ulrich, 2006), a widely accepted practice in healthcare. Case study research can include two levels of effort including a facility documentation phase only or it can also include a follow up Post Occupancy Evaluation phase as shown in Figure 1. It is argued that including both phases is a pre-requisite to understanding how the design attributes are linked to outcomes. This means that the primary thrust of a case study research effort is two-fold: 1). to *accurately capture and document facility information* (front-end thinking such as design goals and the physical environment); and 2) *identify the performance indicators* that can be used to assess the success or failure of the design decisions within a particular facility using Post Occupancy Evaluation (POE) approach (Preiser and Vischer, 2005). POE can be viewed as *a* follow up step to assess achievement toward the desired outcomes defined in a performance-based framework.

To develop this performance-based framework, performance indicators need to be identified from the research literature and include two types: *design attributes* (input indicators) and *outcomes* (output indicators) as shown in Figure 1. The first type of design attributes, *objective facility elements*, includes indicators such as size and type of space which are often captured using planning documents (i.e. space list) or from floor plan take-off calculations. The second type of design attributes, *design concepts*, includes how an architect translated ideas into a design solution with an objective of achieving a desired outcome (the output indicator). Design concepts are best identified from an interview with the professional architect of record or using an expert evaluation from a review of the facility drawings.

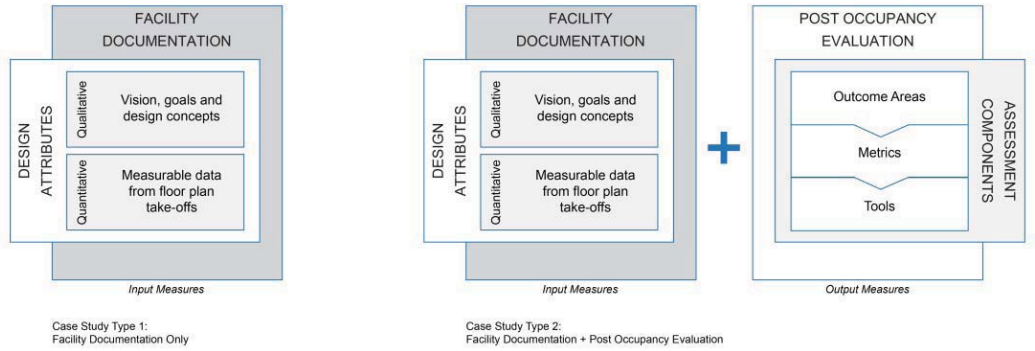

Figure 1: Two levels of effort for case studies: 1. Facility Documentation and 2. Facility Documentation plus POE

Facility case studies can be used for a variety of purposes including:

1. To understand current trends and eventually "best practices" in a specific department or facility typology whereby educating clients and project teams on current practices in the field.
2. To generate a modest performance-oriented data base from cross-case comparisons using a standardized approach.
3. To inform design guidelines and planning decisions for a facility type from the knowledge gained from the collective cases
4. To aid in conducting follow up facility assessments or POEs in two ways: 1. accurately document facility information in a standardized format, and 2. A collection of cases offers a peer group to compare findings from one case to other comparable cases.

One of the reasons that case study research is situated within a performance-based approach to facility design is to arrive at a more systematic way to determine “best practices” in facility design. “Best practices” in facility excellence cannot be objectively identified without conducting case study research using a standardized format (so each facility is evaluated based on the same criteria). Currently best practices are defined by “experts” recommending particular examples or cases to look at based on anecdotes, or suggested from findings from a research study or studies. In order to be deemed a “best practice,” there should be performance-based indicators based on established criteria packaged within a framework.

A collection of case studies can help answer the question, *What is Design Excellence?* If a client is seeking “Excellence” then it is important to define the performance indicators of success or what excellent is (the criteria, the metrics and the targets/benchmark). Then after the assessment or evaluation it is possible to determine if the facility achieved the established grade or score. The facilities that score high in the areas of interest (for example operational efficiency) would then be the facility “exemplars” that should set the bar for creating “Excellence” in operational efficiency. The criteria for categorizing “exemplars” might be organized into three distinct levels, for example: 1. *Good ideas*, peer review recommended facilities based on connections between design attributes and outcomes. The connections between design attributes and outcomes are not yet rigorously tested, but show indications of initial success; 2. *Promising practices*, have been systematically evaluated using limited indicators of success; and 3. *Best practices*, are evidence-based design practices that have proven outcome and process indicators of success, practices have been replicated and proven to be effective in multiple site examples.

The identification of facility benchmarks, i.e. the "Best of the Best" should emerge from case study research. These facilities should set the standard for their category and proven based on standardized indicators of success (and measured in the follow up POE). In case study research, considerable information can be collected off-site yet, the best ones that warrant additional study may undergo a site visit investigation to learn more about their design, developmental processes, policies and procedures, and organizational structure that have contributed to their success. Case study research can lead to the collection of "best practice" facilities and the factors that make them successful. The authors argue that a standardized performance based framework is a pre-requisite to determining “empirical-based best practices.” Best practices are high performing facilities that employ "evidence-based" design and operational approaches that can be replicated with the expectation that they will achieve similar results. The results from case study research can also inform the POE process by setting benchmarks for comparison value. The information collected for case studies can be considered a subset of the larger body of information collected for a POE.

There are many decisions that need to be made prior to conducting case study research. Below are three key decisions that need to be made: 1. *What resources are available to support the investigation?* Will it be a limited effort (involves off-site investigations only) or expanded effort (includes off site investigation and an on-site investigation). 2. *What is the scope of effort*? Will the entire facility be studied or a particular area or room within a facility? 3. *What is the level of the effort?* Will the case study research include one facility or multiple facilities (this allows for the case study comparisons).

In summary, the essence of case study as a research strategy is to “illuminate a decision or set of decisions: why they were taken, how were they implemented, and with what result” (Yin, 2003, p. 12; Schramm, 1971). This definition identifies “decisions” as the major focus of case studies (Yin, 2003). As a result, the objective of facility case study research is to catalog one or multiple facility sites within a building typology using a standardized format, methodology and pre-determined set of indicators. Accurately documenting and analyzing facility information is the focus of this effort. It should include quantitative objective information that can be pulled from existing floor plans, technical facility information and other documents as well as qualitative data such as themes and patterns (for example design concepts) that emerged from interviews, observations and other sources. Within the next section, the authors will present a proposed model for conducting case study research.

PROPOSED APPROACH, PROCESS AND COMPONENTS TO CASE STUDY RESEARCH

Within this section, the authors propose a model for conducting facility-based case study research informed by case study research design and methods literature (Yin 2009). The case study approach for systematically documenting a facility includes a six-step process as shown in Figure 2 below. For each step, why the step is important, the activities involved in the step as well as potential deliverables are presented. In the last section of the paper, the model is applied to an example of primary care clinics.

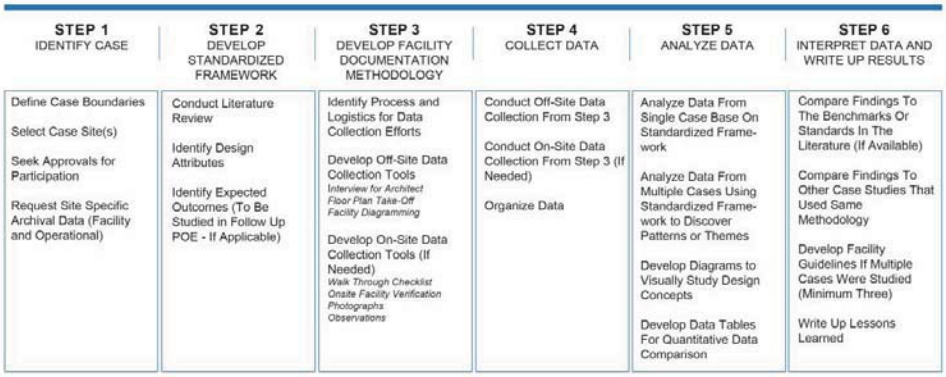

Figure 2: Six step case study process overview for facility documentation phase

Step 1: Identify Case. The end goal of this step is to identify a case and define the bounded system (or the specific boundaries of what will be investigated). For an architectural inquiry, a case often involves a setting and its phenomena and can range from a large scale community to a building type to a specific room or room element. In this step it is important to define the boundaries of the case and determine if a single case will be studied (within case study) or multiple cases (cross-case comparison). The boundaries of the case may be determined by a client request, a researcher or firm's interest or a funded research opportunity. If the researcher is unfamiliar with the case selected (such as a building typology), this step should include a preliminary review of the literature to gain a better understanding of the system, programmatic elements, and context. Another activity in this step is to identify eligible cases (and then *select a case or group of cases*) for the analysis. Once approval is granted by a site administrator, it is important to develop an archival data request with a list of facility and operational data needed to conduct the research.

Step 2: Develop a Standardize Framework. The end goal of this step is two-fold: First, identify the performance indicators linked to the case chosen from the research literature including design attributes and desired outcomes; and second, develop a standardized case study framework. A time consuming step in the case study project is to review the published literature to finalize the performance indicators. Published literature may be reviewed including design and research databases from various online and print sources (research articles, design articles, codebooks and planning books, organizational websites). Project specific information provided by the client should be requested and reviewed as well. The organizing framework used to study the cases should include key design attributes, outcome areas and corresponding metrics.

To help understand the terminology, definitions have been developed for these major case study components. First, *Design Attributes* are the elements that define the physical environment and can range from quantitative, objective attributes such as size of rooms and qualitative design attributes can range from design strategies (what should be done in the design as suggested in the literature) and concepts (how the architect solved the particular problem; a solution). Second, *outcomes* are the end results or consequence of an input measure (in this case the design decisions related to the physical environment). Desired outcomes are often voiced by a client or documented in the published literature. Outcome areas are an expansion of the outcomes to provide a filter that translates outcomes to architecturally significant areas of inquiry. Examples of design concepts are the separate circulation zone (concept) to optimize workflow efficiency (outcome area); clustering care pods (concept) to reduce travel distances (outcome metric); hierarchical circulation pathways (concept) to encourage access and wayfinding (outcome area). *Metrics* are ways to measure design attributes and outcome areas.

Step 3: Develop Facility Documentation Methodology. Facility documentation includes capturing up-front decision making, the architectural design and the key design attributes for a selected case. To document this information in a consistent manner (and allow cross-case comparisons), it is important to develop a methodology of *what to collect and how to collect necessary information for the case study analysis*. Therefore, the tools need to be developed and a logistic plan for data collection needs to be established.
Yin's (2009: 101-114) provides an overview of six sources of evidence commonly used in case study research including: "documentation, archival records, interviews, direct observations, participant-observation, and artifacts." These sources are often complementary and case studies often use multiple sources. Following his discussion of these sources of evidence, Yin suggests following three principles to help deal with problems concerning "construct validity and reliability of the case study evidence." (114). The

principles are: 1. Use multiple sources of evidence, 2. Crease a case study data base, and 3. Maintain a chain of evidence.
The authors suggest that case studies should include the development of a questionnaire and the completion of an interview with the architect and planning team of the project. The purpose of the interview is to solicit information from the architects on the design goals, drivers and solutions. A questionnaire should focus on identifying design concepts and related outcomes. The types of questions to be asked could be organized into two thematic sections: 1. Background facility information (such as project size, cost, timeline, challenges, and design process); 2. Design drivers and concepts related to the outcome areas for the facility overall and for the key areas studied. Finally, this step should include the development of a final report template that will eventually be populated with data collected from step 5 which will come from three primary sources: 1. information gathered from literature review; 2 take-off information from facility drawings and other archival information provided by architect or client, and 3. interview with architect. If a site visit is possible, it will provide opportunities to verify facility information, as well as collect new information from a photographic protocol or onsite observation.

Step 4: Collect Data. The purpose of this step is to implement the facility documentation methodology and tools developed during step 3. Thus this activity includes off-site and possibly on-site data collection efforts. The use of diagramming is a useful visual approach to capture qualitative data such as design concepts. In contrast, quantitative data is best represented using data tables and displays. Measurements such as area sizes, net to gross factors and travel distances collected from floor plan take-offs are examples of the types of data that are quantitative in nature and lend themselves for objective data tabulations and comparisons.

Step 5: Analyze Data. This step involves taking all of the data collected and organizing the data for an effective analysis strategy. The analysis strategy is dependent upon whether a single case is studied or multiple cases are studied. Likewise, whether the entire case is studied or a partial aspect of the case is studied. The type of data collected (i.e. quantitative data versus qualitative data) will determine the best way to analyze the data. To organize data, Miles and Huberman (1994) offer some helpful suggestions including collecting data, displaying data in different formats, and reducing the data down into manageable chunks in an effort to draw and verify conclusions. The strategy of coding data allows for establishing relationships and patterns that emerged from the data. Throughout the analysis, is important for the researcher to ask the following questions: What patterns and themes emerged from the data and how do these themes relate to the study questions? Are there any deviations from these patterns and if so how they are explained?
Qualitative modes of data analysis provide ways of discerning, comparing, understanding and discovering themes and patterns from the data collected. In quantitative analysis, there is an emphasis on comparing numbers and tabulating results. It is best to understand the complexity of the situation by using both qualitative and quantitative sources of data to triangulating conclusions. Finally, Yin (2009:136-160) offers five analytical techniques that are helpful during the data analysis step and include: 1. Pattern Matching, 2. Explanation Building, 3. Time Series Analysis, 4. Logic Models, and 5. Cross-Case Synthesis.

Step 6: Interpret Data and Write-up Results. The end goal of the final step is to synthesize all data collected and draw conclusions based on the evidence available. Findings from the analysis include case description for a single case and case-based themes for multiple cases to understand the complexity of the defined case. Once conclusions are presented it is important to support conclusions or claims with evidence collected from the case study investigation (and ideally use multiple sources of evidence to support conclusions). Themes and patterns that emerged from interviews or observations can be supplemented with quantitative data from floor plan take-off calculations, surveys, or technical readings to strengthen the argument. Developing a standardized report template is ideal particularly if additional case studies may be studied using the same methodology and framework. Data collected is used to populate the case study template and it should be organized around the performance-based framework.
Once the case study research is completed, it is possible to compare the case to determine how it performs among peers based on the established indicators as shown in Table 2. The data collected from the aforementioned steps can lead to the start of a modest data table that allows for comparisons with similar facility types or with recommendations from the literature. Once the POE is conducted, or there is evidence to support a positive relationship between the design attributes and outcome area, then best practices can be concluded.

Table 2: Deliverables from facility documentation and facility performance evaluations case studies

CASE STUDY TYPE	TYPE OF DATA	FACILITY DOCUMENTATION	FACILITY PERFORMANCE EVALUATION
Single Case	*Quantitative*	Unique Space Allocation and Use	Impact of Space Allocation and Use On Expected Outcomes Within Case Studied
	Qualitative	Unique Design Concepts	Impact of Design Concepts On Expected Outcomes Within Case Studied
Multiple Cases	*Quantitative*	Common themes and Patterns in Space Allocation and Use Across All Cases Studied	Patterns Demonstrating How Space Allocation and Use Influenced Expected Outcomes Across Cases Studied
	Qualitative	Common themes and Patterns in Design Concepts Across All Cases Studied	Patterns Demonstrating How Design Concepts Influenced Expected Outcomes Across Cases Studied

APPLYING THE CASE STUDY RESEARCH MODEL TO PRIMARY CARE CLINICS

The example selected to apply the case study research model is a primary care clinic. This building typology was selected for two key reasons: outpatient clinics are the fastest growing segment of healthcare spending and second the authors have conducted numerous case studies on this building type. In this final section of the paper, the authors illustrate the steps with examples. Due to length restrictions of this paper, these steps have been abbreviated.

Step 1: Identify Case. An outpatient healthcare clinic was chosen to study since it is the fastest growing segment of healthcare spending. According to a 2011 National Center of Health Statistics (NCHS) report, there were 1.2 billion ambulatory care visits in the United States in 2007, with 48.1 percent of these visits being to primary care physicians in office-based practices (Schappert & Rechtsteiner, 2011). The rising demand for primary care services is influenced by demographic changes, including an aging population expected to increase from 12.7 percent of the total U.S. population in 2008 to over 20 percent of the total U.S. population by 2050 and a rise of chronic conditions prevalent in this population (Mann, Schuetz, & Johnston, 2010). Despite this growth, there remains a paucity of empirical research on the architectural performance of these healthcare settings (Preiser, Verderber, & Battisto, 2009). Furthermore, there is limited availability of guidance tools that can help inform future healthcare design decisions.

Once the case type was selected, the authors reviewed the research literature and other published sources to identify: outcomes and design attributes. Additionally, the authors sought out ideal facilities that would be a good fit to study the relationships between the outcomes and design attributes. These example facilities may be identified from experts, published literature or client testimonials. Once a facility was selected (or groups of facilities selected), the authors contacted the project designers and client (in this case the healthcare systems) to request digital floor plans and operational facility data. It is important to note that, facilities that would provide electronic floor plans and pledged cooperation with the research team were considered for this study. Digital floor plans are required for accurately documenting facility information.

Step 2: Develop a Standardized Framework. After the research literature was reviewed and interpreted, the authors decided upon four main outcomes and ten outcome areas for the case study research on outpatient clinics. Additionally, a broad set of design attributes were generated and then short-listed based on literature findings. Following the synthesis of the research and design literature, the authors worked toward operationalizing a case study research framework for primary care that included key design strategies that have been positively linked to the identified outcome areas. Utilizing these key components, a standardized case study evaluation framework was developed. The key design attributes aimed at documenting the physical characteristics of the facility and connections to outcome metrics allowed for comparing multiple cases across a standardized set of evaluation criteria. Table 2 illustrates the proposed case study framework for outpatient clinics.

Table 2: Performance-based case study framework for primary care clinic

OUTCOMES *Measuring Performance*		KEY DESIGN ATTRIBUTES *Facility Documentation*	
Outcomes	**Outcome Areas**	**Design Strategies:** *Qualitative data*	**Objective Design data:** *Quantitative data*
Positive Experience: *The overall patient, family and staff experience within the facility.*	• Aesthetics and amenities • Access and way-finding • Patient and family privacy, comfort and control	• Access to daylight and views in public and patient care areas • Patient and family amenities throughout the facility • Access to patient care areas • Privacy accommodations in patient care areas • Comfort of family accommodations	• Percent of rooms with access to daylight • Waiting and Patient Care Areas space allocation • Pathways and Travel Distance
Operational Efficiency: *The extent to which time and effort is well used.*	• Workflow Efficiency • Functionality • Flexibility and growth	• Clear organization of office, clinical and provider zones • Separate patient and staff circulation patterns • Direct access from staff work areas to patient care areas • Functional layout of the clinic for efficient work processes • Functional layout of the patient care areas for delivering effective care • Flexible and adaptable spaces to accommodate new technologies and changes in care delivery practices	• Net-to gross factors • Department zones space allocation • Room zones space allocation • Movement and travel distance
Clinical Effectiveness: *The quality of care rendered within the healthcare setting.*	• Effective communication, collaboration and connectivity • Staff Support Areas • Safety and Infection Control	• Layout of patient care areas to promote communication between patients, family and staff • Spaces available to coordinate care among staff • Spaces available for staff training and education • Clear visibility lines • Compatibility of electronic systems and medical devices	• Percent of total clinic area for staff collaboration, training and education • Visibility lines from staff work areas • Travel distance from staff work areas to patient care areas
Healthy Environments and Sustainability: *The relationship between the physical environment and environmental impact.*	• Environmental Stewardship	• Implementation of green design initiatives to encourage a therapeutic and sustainable environment	• Technical details of the facility related to energy, water, air quality, etc.

Step 3: Develop Facility Documentation Methodology. The facility documentation protocol developed by the authors for primary care included a standard methodology to capture and diagram the key facility attributes across the four outcome clusters and the ten outcome dimensions. For example, the measurement protocol included a standard methodology and specifications for conducting floor plan take-offs in a systematic manner informed by the metrics. For example, when measuring travel distances, a departure and destination point needs to be articulated; when measuring room area sizes consistency in the room boundaries are established. This will ensure the measurements are conducted consistently across cases to allow comparison based on similar parameters.

Additionally, in order to package the cases in a consistent manner a template was developed that was later populated with project specific information generated from the completing step 4. The proposed template is organized by performance outcome and dimension category. It includes the facility documentation diagrams, the measurements guided by the performance metrics, metrics for comparison and a description of the key design attributes identified through floor plan analysis. The diagrams allow for comparison of design concepts across cases. As a result, the use and implementation of a template will allow capturing the same level of information for each case used for cross comparison. This step included the development and execution of the following tools noted in Figure 4.

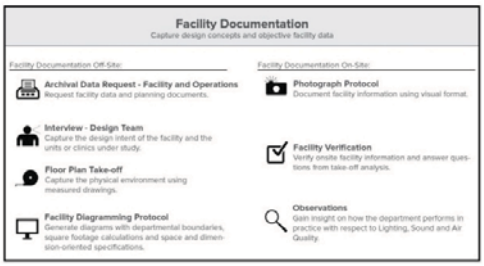

Figure 4: Facility documentation methodology

Step 4: Collect Data. After the research team completed all of the tools, methodology and logistics for collecting the data, they executed the case study research. Data was collected from the various sources including floor plan take-off calculations from drawings, photographs taken onsite, interviews with the design team. Each case study included background information such as facility location, setting, size, types of services and overall operational data such as daily patient encounters. In addition, the case study research report included an analysis of the facility by the ten outcome areas identified in Table 2. After each case was completed, all cases were compiled into a single format to allow comparison across cases based on the standard set of evaluation criteria.

Step 5: Analyze Data. The data collected from the various case studies are often displayed in different formats in an effort to establish patterns across the cases studied. Figure 6 illustrates a pattern that emerged concerning circulation hierarchies across four clinics when studying access and wayfinding as well as workflow efficiency.

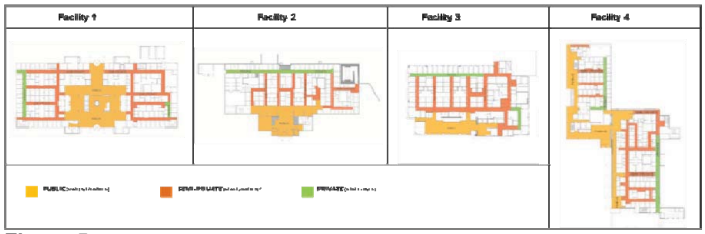

Figure 5: Circulation Hierarchy Design Concept

Step 6: Interpret Data and Write-Up Results. To conclude the case study research, the authors conducted a comparative analysis of the two design attribute types organized around each outcome area. First a data table was generated that compared the objective, quantitative metrics across all cases and then compared findings to recommendations from the literature particularly national standards of leading authoritative guideline sources e.g. *FGI Guidelines*, *Whole Building Design Guide*, *SpaceMed*, etc. A rule of thumb was then produced that was the result of an interpretation from the case study findings in relation to the recommendations from the literature review. *Trends may include things such as programmatic areas and elements, space allocation, space adjacencies, travel distances, net to grossing factors and design concepts*. The authors identified various data elements for comparison across cases including overall space planning criteria such as DGSF per provider, DGSF per exam room and net to gross factors; room area sizes for exam and treatment rooms; and operational planning criteria such as number of exam room per providers and daily visits per provider. An example of a simple data table example is shown in Figure 6.

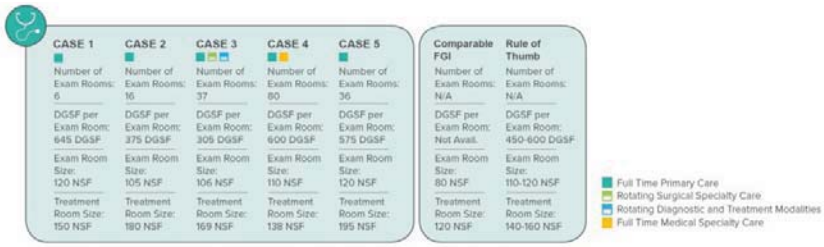

Figure 6: Cross-case comparisons and related standards

Second, a set of the common design concepts that were employed within the cases studied were presented and compared within each outcome area. Any empirical evidence that demonstrated a relationship between the design attribute and outcome area provides justification for best practices in architectural design. The end goal of this step is to work toward translating findings into useful design guidelines or "rules of thumb" to aid with new projects outpatient care. Below is an example of the cross case analysis conducted for the five selected clinics.

CONCLUSIONS

The authors argue in this paper for a standardized case study research approach for the discipline and practice of architecture. The standardized approach should be anchored within a performance-based framework. Building upon the literature on the case study research design and methods, the authors propose a case study approach that involves two levels of effort: 1. Facility documentation case study research only and, 2. A follow up Post Occupancy Evaluation of the facility if time and resources permit to measure the efficacy of the design concepts in relation to desired outcomes. A six-step facility-based case study research process is presented in this paper building upon the premise that a standardized case study methodology and framework are needed. These are needed to encourage the replication and comparison of facilities using a set of shared performance indicators (facility design attributes and measurable outcomes). Utilizing a standardized framework and methodology would enable similar facilities to be compared to each other. Likewise, it would help architects to identify "best practices" in facility design that are informed from a systematic process and comparable criteria. Finally, the authors claim that case study research could produce a facility data base that could be used to help inform evidence-based planning and design guidelines.

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