Spring 2013

Waiting as Remedy: The Architecture of Emergent Care

Jack McCarrick
Syracuse University

Follow this and additional works at: https://surface.syr.edu/architecture_tpreps

Part of the Architecture Commons

Recommended Citation
https://surface.syr.edu/architecture_tpreps/224

This Thesis Prep is brought to you for free and open access by the School of Architecture Dissertations and Theses at SURFACE. It has been accepted for inclusion in Architecture Thesis Prep by an authorized administrator of SURFACE. For more information, please contact surface@syr.edu.
WAITING AS REMEDY
THE ARCHITECTURE OF EMERGENT CARE

Jack McCarrick
M.Arch I Candidate

Robert Svetz
Primary Advisor

Brian Lonsway
Secondary Advisor

School of Architecture, Syracuse University, Spring 2013
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>INTRODUCTION</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>THE EMERGENCY DEPARTMENT: TOWARD A NEW LEVEL OF CRISÉS</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Waiting Room vs. Emergency Room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diversity of the Waiting Room</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>WAITING AS REMEDY</td>
<td>25</td>
</tr>
<tr>
<td>IV</td>
<td>THE CLINIC REVISITED</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Herzog &amp; de Meuron: Rehab Basel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OMA: Maggie's Centre</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>SPACES OF WAITING</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>The Retail Store</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>WAITING AS REMEDY REVISITED</td>
<td>45</td>
</tr>
<tr>
<td>VII</td>
<td>SITE</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>The Urban Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Suburban Hospital</td>
<td></td>
</tr>
<tr>
<td>VIII</td>
<td>DOCUMENTATION</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Bibliography</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Figure Credits</td>
<td></td>
</tr>
</tbody>
</table>
Following the final phases of the Patient Protection and Affordable Care Act, an estimated thirty-two million additional Americans will have access to health insurance in 2019. Despite theoretically having a greater opportunity for access to primary care under the new policy, many of the newly insured will seek medical attention from emergency departments, regardless of the severity of their issues. Without consideration for this impending influx of patients, emergency departments have seen a rise in the volume of incoming patients, becoming overcrowded and leading to a deficiency in patient care. The current protocol for sorting patients upon their arrival to an emergency department stratifies patients into a range of acuities with respective wait times based on the urgency or appropriateness of their visits. With a considerable number of visits not receiving immediate attention or care, many patients are displaced to the waiting room, where they potentially spend a greater portion of time than they do receiving treatment once administered to an emergency room.

Considering the discrepancy between the time spent waiting and the time spent receiving care, the waiting room potentially has a greater impact on patient satisfaction, and in turn patient treatment, than the emergency rooms themselves. How can the spaces of medical waiting provide care for a range of urgencies with varying wait times? While the stark sobriety of examination and treatment rooms has come to represent an expected level of clinical expertise, the waiting room has the potential to operate with multiple formal and programmatic expressions to administer care accordingly to the range of incoming cases with various biological needs and psychological desires — from medical education and self diagnosis to emergent care to implied care.

Between the years of 1997 and 2007, the number of emergency department visits increased by twenty-three percent.¹ This increase in visits has led to the congestion of emergency departments, with over ninety percent of hospitals reporting overcrowding (zero available beds, holding patients in hallways, long waits).² Recent investigations have already considered operational improvements and changes to emergency department layouts in order to better accommodate and fast track the different levels of severity for incoming cases³, however the role of the waiting room has fallen to the wayside.

Contemporary investigations of high-end architecture into healthcare, such as Herzog & de Meuron’s Rehab Basel, have primarily focused on isolated care and treatment centers, considering the role that landscape and materiality play in the healing process. However, these projects are typically detached from an urban context with little or no sense of urgency to the care provided.

In order to research the potential of the waiting room, the current condition of the emergency department must first be examined. Patient volumes of different acuities and their respective waiting times will be researched to determine the necessary space allocation for areas of waiting and areas of care.

Next, past examples of waiting spaces must be examined. These spaces should not be strictly limited to medical programs, but rather they should come from other fields where the act of waiting has been thoroughly considered or exploited to enhance or alter the desires of the users. The various waiting experiences of commercial spaces will be primarily researched.

Finally, the range of programs necessary for fulfilling the biological needs and psychological desires of the various patient acuities will be determined.

While the Patient Protection and Affordable Care Act provides insured care to a much larger group of Americans, it has the potential to reduce the quality of care provided to patients, particularly in emergency departments. This research will argue for a reimagining of the emergency department in which there is a definitive split between the architectural implications of spaces where technical care is administered for biological needs (the emergency room) and spaces where primary and implied care can satisfy the psychological desires of inappropriate patients (the waiting room) in order to better serve appropriate patients.

Notes
From the time a patient is taken to the emergency department to when they first receive medical attention, there is a drop in the level of care received as he/she experiences the waiting room. Due to a lack of primary care providers, which is expected to only get worse, and an obligation to accept any incoming patient, emergency departments receive a large number of inappropriate cases daily, causing congestion and increased waiting times for urgent and non-urgent cases alike. While both groups (appropriate and inappropriate) seek clinical care in the emergency room, they are, more often than not, first confined to the waiting room -- an area of medical limbo where care ceases to exist. Despite this distinct separation between the emergency room and the waiting room, the two receive the same formal expression of clinical sobriety. Furthermore, the waiting room provides a single waiting experience for all patients regardless of the severity of each case. It would seem that the spaces of waiting could take a more involved role in the administration of care through various programmatic and formal operations that address the wellness of both urgent and non-urgent cases.
354 Million Annual Visits for Acute Care¹

42% Personal Physicians¹

28% Emergency Departments¹

22.9% Private Insurance¹

51.9% Public Insurance¹

29.4% Uninsured¹

50% Other Source of Care¹

50% No Other Source of Care¹

209,000 Deficit of Primary Care Physicians

Current Condition 2013: 205,000
Future Condition 2025: 18,000

50% Other Source of Care²

22.9% Private Insurance²

51.9% Public Insurance²

29.4% Uninsured²

50% No Other Source of Care²

20% Specialists²

7% Outpatient Departments²

<5% of all Physicians²

209,000 Deficit of Primary Care Physicians

Current Condition 2013: 205,000
Future Condition 2025: 18,000

Notes
As patients come into the emergency department, they are filtered through triage (the sorting of patients according to the urgency of their need for care) creating a stratification of patients with respective waiting times from “non-urgent” (needing to be seen between 2 and 24 hours) to “immediate” (needing to be seen in less than one minute). With 42% of patient acuities categorized as a “semi-urgent” or “non-urgent”, a significant portion of the waiting room becomes occupied by inappropriate cases with no true need for emergency facilities or the more specialized care they offer. Conversely, “emergent” and “urgent” cases (appropriate cases) comprise 51% of emergency department visits, with average waiting times of 51.2 minutes and 63.3 minutes respectively.¹ While these appropriate cases have relatively little time to spare and a true need for the emergency room, inappropriate cases have time to wait but typically no access primary care, or they lack general medical knowledge.

Notes
Notes


PERCENTAGES OF PATIENT ACUITIES:
United States, 2009

- IMMEDIATE: Needing to be seen in less than 1 minute
- EMERGENT: Needing to be seen within 1–14 minutes
- URGENT: Needing to be seen within 15–60 minutes
- SEMIURGENT: Needing to be seen within 1–2 hours
- NONURGENT: Needing to be seen between 2 and 24 hours
- NO TRIAGE: No triage system was used

MEAN EMERGENCY DEPARTMENT WAIT TIME FOR TREATMENT, BY URGENCY OF PATIENT CARE:
United States, 2009

- IMMEDIATE: 28.9 min
- EMERGENT: 51.2 min
- URGENT: 63.3 min
- SEMIURGENT: 58.7 min
- NONURGENT: 53.5 min
- NO TRIAGE: 38.2 min
TIME FROM REGISTRATION/ TRIAGE TO PHYSICIAN ASSESSMENT
vs TIME FROM PHYSICIAN ASSESSMENT TO DISCHARGE:
Canada, 2005¹

TIME FROM REGISTRATION/ TRIAGE TO PHYSICIAN ASSESSMENT
Immediate: 3% Immediate, 97% Remaining
Urgent: 35% Urgent, 65% Remaining
Nonurgent: 66% Nonurgent, 33% Remaining

Notes
Patient arrives as walk-in

Patient arrives by ambulance or helicopter

Triage: the sorting of patients according to the urgency of their need for care

WAITING

IMMEDIATE  EMERGENT  URGENT  SEMIURGENT  NONURGENT

22-yo male involved in a motorcycle accident brought to the hospital by ambulance. The patient has an exposed bone, a potential severed artery, and loss of consciousness. He is rushed immediately to the trauma room.

After stopping the bleeding, setting the bone and temporarily stabilizing him, the patient is taken to have a CT-Scan performed to insure there is no unseen internal bleeding or other bone trauma.

The CT-Scan reveals nothing new, and the patient is relocated to the intensive care unit to be closely monitored in order to prevent further deterioration.

CASES

1. Major trauma such as a motorcycle wreck with exposed bone and loss of consciousness
2. Respiratory failure from drug overdose or overwhelming pneumonia
3. Cardiopulmonary arrest - typically an elderly patient
4. Major bleeding from a severed artery
5. Active seizure in an epileptic
Patient arrives as walk-in

Triage: the sorting of patients according to the urgency of their need for care

Patient arrives by ambulance or helicopter

**WAITING**

**IMMEDIATE**  **EMERGENT**  **URGENT**  **SEMIURGENT**  **NONURGENT**

55-yr female is driven by a relative to the hospital and checks in with the reception desk, complaining of chest pain, sweating and nausea.

The patient is taken to triage for clarification of symptoms and a check of vital signs. Following the check, the patient is directed to the first waiting room, where she can be monitored by the receptionist.

After waiting for 20 minutes, the patient is admitted to an examination room with a high level of visibility. Following a physician consultation, an EKG-Test is administered to check for a heart attack.

The EKG-Test comes back negative, and the physician suspects a possible pulmonary embolism. The patient is given a CT-Scan to check for a blood clot.

The CT-Scan reveals a clot and the patient is taken to the intensive care unit to be monitored and treated for the clot.

**CASES**

1. Chest pain, sweating and nausea
2. Known heart attack that needs a cardiac procedure
3. Stroke - patient suddenly loses speech or strength and needs emergent procedure
4. High fever and shakes in elderly patient
5. Floppy child who is minimally responsive and with fever
**CASES**

1. Deep cut without arterial bleeding
2. Abdominal pain with nausea and vomiting
3. Migraine headache with severe head pain
4. Altered mental status from drug overdose but no current need to be on respirator
Patient arrives as walk-in

Patient arrives by ambulance or helicopter

Triage: the sorting of patients according to the urgency of their need for care

WAITING
IMMEDIATE EMERGENT URGENT SEMIURGENT NONURGENT

18-yr female is taken to the emergency department by car and checks in with the receptionist, thinking that her ankle is broken from an accident in a soccer game. She is sent to triage.

The triage nurse determines that the ankle could have a minor fracture. The patient is sent to the waiting room until an examination space opens up.

After waiting for 2 hours, the patient is brought back to a larger examination space with curtain partitions. The ankle is checked by a physician who suspects a simple sprain but calls for an X-Ray to make sure.

The patient is taken to the X-Ray room to have her ankle imaged.

The X-Ray reveals no fracture, and the patient is sent home after being told to keep weight off of her ankle.

CASES
1. Sprained ankle or simple fracture
2. Simple cut that needs suturing
3. Pregnant patient with gynecological complaints
4. Kidney stones
Patient arrives as walk-in

Triage: the sorting of patients according to the urgency of their need for care

Patient arrives by ambulance or helicopter

WAITING

IMMEDIATE  EMERGENT  URGENT  SEMIURGENT  NONURGENT

6-yr female is brought in by her father, who tells the receptionist that his daughter has strep throat. The daughter is quickly checked in triage and then told to have a seat in the waiting room.

After waiting for 4 hours, the patient is brought to a larger examination space, divided by curtains. A physician checks the patient and determines that the sore throat is most likely due to allergies.

The patient is sent home and told to get rest.

CASES

1. Child with “strep throat” or ear infection
2. Anyone who just feels bad
3. Dental problems such as infection or broken tooth
4. Psych case threatening something
Despite having a relatively large amount of square footage devoted to a relatively small portion of patients in the emergency department who are categorized as either immediate or urgent, these groups still experience longer wait times than the Center for Disease Control deems appropriate, putting them at great risk. Conversely, semiurgent and nonurgent patients are seemingly better-served than more-emergent cases in the emergency department, experiencing average wait times that are less than their appropriate wait times. Considering the lack of need for emergency facilities by such a significant portion of the waiting population, it would seem that the waiting room could be expanded to facilitate needs for primary care or general medical education (promoting self-diagnosis). While inappropriate cases seek a waiting space that would make them more aware or knowledgeable of their current medical condition, truly emergent cases desire a space that could imply care and assurance in the absence of the emergent treatment they need.
MEAN EMERGENCY DEPARTMENT WAIT TIME FOR TREATMENT, BY URGENCY OF PATIENT CARE:
United States, 2009¹

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean Wait Time in Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMEDIATE</td>
<td>27.9 min</td>
</tr>
<tr>
<td>EMERGENT</td>
<td>37.2 min</td>
</tr>
<tr>
<td>URGENT</td>
<td>3.3 min</td>
</tr>
<tr>
<td>SEMIURGENT</td>
<td>58.7 min</td>
</tr>
<tr>
<td>NONURGENT</td>
<td>53.5 min</td>
</tr>
</tbody>
</table>

PERCENTAGES OF PATIENT ACUITIES:
United States, 2009¹

- IMMEDIATE: Needing to be seen in less than 1 minute
- EMERGENT: Needing to be seen within 1–14 minutes
- URGENT: Needing to be seen within 15–60 minutes
- SEMIURGENT: Needing to be seen within 1–2 hours
- NONURGENT: Needing to be seen between 2 and 24 hours
- NO TRIAGE: No triage system was used

Notes
WAITING AS REMEDY

EMERGENT CARE

NON-EMERGENT CARE
WAITING AS REMEDY

IMMEDIATE
EMERGENT
URGENT
SEMIURGENT
NONURGENT

PSYCHOLOGICAL DESIRE

BIOLOGICAL NEED
HERZOG & de MEURON: REHAB BASEL
Clinic Type: Center for Spinal Cord and Brain Injury
Location: Basel, Switzerland
Year: 2002

The rehabilitation center aims to create a distinct split between spaces where clinical, more technical care is administered and those where sensorial treatment is provided. Shifts in materiality and form distinguish between these two zones, allowing for patients to escape the clinical feel typical of rehabilitation centers. Wood in the patient rooms is contrasted with zones of greenery interspersed in plan and a concrete pyramid, celebrating the rehabilitation pool — where freedom of movement is given back to the patients.
The cancer care center acknowledges the various needs and social desires of patients coping with cancer by creating a series of continuous spaces ringed around a central garden. Each space is kinked off access from the next to create distinct zones for the different desires of the patients while preserving continuity. Furthermore, material (concrete and glass to wood) and formal changes (rectilinear to curvilinear) create a distinct space of isolation that offers a phenomenological escape.
THE RETAIL STORE

The act of waiting is manifested in various spatial layouts dependent on a particular retail store’s target audience and their respective desires. Ranging from the generic big box store to the apple store, waiting can be seen as an opportunity to increase desire and consumption, or it is eliminated altogether, viewed as a suppressant to desire. Big box retail creates a distinct zone for acquiring particular items of desire separate from the zone of waiting, the checkout. Alternatively, IKEA combines waiting with desire, forcing the customer to walk through all mock-up rooms before finally being able to select their item of choice, constantly driving desire up through the act of waiting to leave. Apple replaces zones of waiting with mobile employees, filling a single space with overlapping nodes of desire, increasing consumer interest until they leave, never allowing for a drop in desire.

CONSTRUCTED FACTORS  CONSUMER DESIRE

| TIME SPENT SHOPPING |  |
| INTERCEPTION |  |
| SIGNAGE |  |
| PHYSICAL INTERACTION WITH PRODUCT |  |
| TIME SPENT WAITING |  |

Notes
1. Underhill, Paco
Why We Buy: The Science of Shopping. 36-39, 58-59
BIG BOX STORE:
Consumers enter the big box store with desire at its maximum level, already aware of the items they will purchase. Signage distributes these items of desire in space, determining the path of the customer. Initial consumer desire decreases incrementally as each item is acquired, while the aisles of the store create constructed zones of desire for the consumer to pass through, creating a new list of desires. The process ends in the checkout line, a distinct zone of waiting where desire drops.
IKEA
Upon entering IKEA, customers are directed to the second floor, where they occupy rooms of desire. Any individual items of desire are showcased with complementary items, creating variations on complete rooms. Regardless of the customer’s need to view other rooms, he/she is required to progress through all rooms, increasing desire through the act of waiting to leave and checkout.
APPLE STORE
Apple’s transparent facade forces desire on passersby, drawing them in regardless of their intention to purchase. Products are distributed across an open space, creating overlapping nodes of desire. Waiting is replaced by mobile employees, eliminating any space or period of downtime, allowing desire to never fall.
WAITING AS REMEDY REVISITED

Psychological Desire: Reassurance in the waiting room
Biological Need: Emergent Care / Treatment
Ability to Wait: Low

Psychological Desire: Comfort / Reassurance in the waiting room
Biological Need: Urgent Care
Ability to Wait: Medium

Psychological Desire: Medical Knowledge + Attention
Biological Need: Primary Care
Ability to Wait: High
The emergency department is reimagined as a stratified system that progresses from the highest level of biological need for immediate and emergent patients to the lowest level of biological need and the highest level of psychological desire for nonurgent and semiurgent patients. At each level, the act of waiting is altered to accommodate the desires of the level’s corresponding patients. At one level, desire is manifested in various waiting rooms, providing comfort or reassurance to a range of patients through differences in materiality or form. At the next level, desire is dispersed into a field of nodes to create a gallery of medical knowledge and assisted self-diagnosis, to assuage the psychological uncertainty of inappropriate patients who come to the emergency department. At the highest level, waiting is transformed into pure desire or distraction, in an attempt to completely remove a patient from the medical setting as they wait to be seen by a health professional.
THE URBAN HOSPITAL

The urban hospital provides the possibility for waiting to take place outside of the waiting room if a patient is in the condition to leave and return at a later time. In Manhattan, individual hospitals can be identified for an intervention based on their average wait times. Hospitals in urban conditions, typically take the form of towers that occupy an entire block, with a significant portion of the ground floor devoted to the emergency department. A reimagining of an urban emergency department would require a sectional reorganization of space, in which the ground floor would still be devoted to emergent cases, while other hospital functions would be shifted upwards to create space for nonemergent, inappropriate cases.

Notes
1. Medicare.gov
Hospital Compare Data: Timely Emergency Department Care 2013.
THE SUBURBAN HOSPITAL

As suburban hospitals typically develop piecemeal through the addition of appendages, they would likely be the suitable testing ground for a new type of emergency department. Furthermore, the availability of neighboring land to the campus allows for the consideration for a reorganization in plan as well as in section. The suburban hospital typically lacks neighboring attractions, requiring all waiting to take place within the hospital itself, however, this could motivate the design to more critically engage the act of waiting within a hospital.
BIBLIOGRAPHY

Canadian Institute for Health Information. “Understanding Emergency Department Wait Times: Who is Using Emergency Departments and how Long are They Waiting.” (2005).


FIGURE CREDITS


37, 40 - Speicher, Susan. Hugs and Money (blog). http://susieecoolmarketing.blogspot.com/  


41 - Lovin' Life (blog). http://www.lovelifeblog.info/p/about-me.html

42 - IKEA Inside (blog). http://ikeainside.blogspot.com/  


51 - The Spotted Pig. http://thespottedpig.com/?page_id=236

51 - Hashtag NYC (blog). http://hashtagnyc.wordpress.com/