UTH-UNC Women's Center of Excellence

Partnering to improve women's health in Zambia

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GBP GLOBAL BUSINESS PROJECT

UNC GLOBAL WOMEN'S HEALTH

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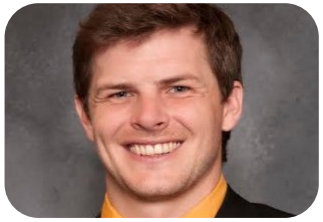

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To better understand UTH and identify workable strategies, our team has conferred with:

7 design and construction firms

Focus Groups and Interviews of **40** clinicians

14 Nurses
14 Doctors

4
Consulting Firms

ICC Kurt Salmon Deloitte. The Gift Development Group

7
Benchmarks of hospitals, pharmacies, and labs

We also conducted over 60 additional Allied Health Professionals and UTH Administration Interviews

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UNC plans to renovate the existing OB/GYN wing and construct a new building for women's health

A. Renovation to obstetrics facilities

B. New connection walkway

C. New UTH-UNC Women's Center of Excellence

- Gynecology facilities
- Imaging
- Laboratory
- Pharmacy
- Private practice
- Ancillary services
- Teaching facilities

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Source: Team analysis

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The new structures will help UTH better serve both its patients and physicians

OB/GYN clinic

Surgical facilities

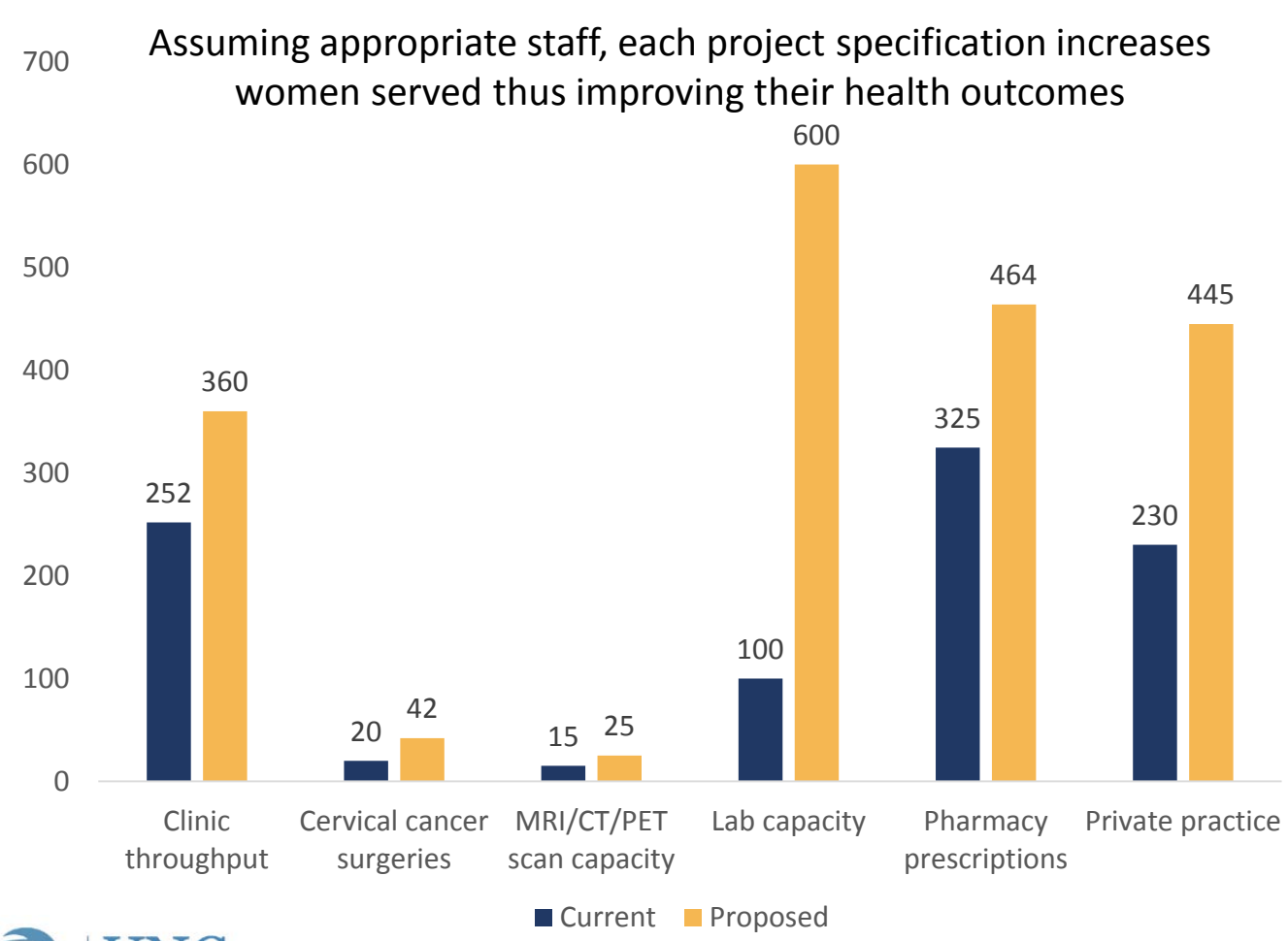
Imaging

Laboratory

Pharmacy

Private practice

The proposed women's center will improve patient outcomes by integrating all aspects of care



Increased capacity leads to:

- Consultation time increases by **10 minutes per patient**
- **Elimination** of critical surgery backlog from theater constraints
- **8 more critical diseases** can be diagnosed from increased lab menu

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This project will comprise 187,000 sq. ft. and require an initial investment of approximately $96 million

Component	Size, sq. ft.	Construction and outfitting cost	Full cost, plus 30% contingency
Obstetric surgery	47,983	$18,793,098	$24,431,027
Gynecologic surgery	66,016	$24,456,023	$31,792,830
OB/GYN clinics	20,412	$6,751,025	$8,776,332
Lab & pharmacy	8,528	$4,249,417	$5,524,242
Imaging center	6,594	$4,965,715	$6,455,430
Ancillary services	16,422	$8,278,920	$10,762,596
Teaching facilities	20,870	$6,674,136	$8,676,377
Total	**186,825**	**$74,168,334**	**$96,418,834**

After initial capital expenses, revenue streams from imaging, laboratory, pharmacy, and private practice facilities will support sustainability

Executive Summary

UNC and UTH will improve patient outcomes, train Zambian clinicians, and create a sustainable healthcare delivery model

Clinical facilities	Surgical facilities	Imaging	Laboratory	Pharmacy	Private practice	Ancillary services
						

This **$97 million** women's hospital capital project will provide treatment for **157,600** women and train **600** Zambian clinicians per year

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GBP GLOBAL BUSINESS PROJECT

Agenda

Introduction to Zambia

UNC-UTH Collaboration

Project Specifications

Impact and Next Steps

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Zambia faces economic and medical challenges that require additional resources and expertise

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“One Zambia, One nation”

Overview of Zambia

Zambia has been an **independent nation since 1964**

Population: 15.2 million

Population growth: 2.3% per year

Life expectancy: 57 (male), 60 (female)

GDP per capita (US$): 1,721.6

75% of population **lives on under $2 per day**

Total healthcare expenditure (% GDP): 5%

Total out-of-pocket healthcare expenditure: 27.8%

Zambia is about the size of Texas

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Source: Deloitte analysis, World Health Organization

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Several challenges threaten Zambia's historically stable economic and political environment

Key challenges

- Declining demand for copper
- Frequent energy blackouts
- Decreasing value of the kwacha
- Increasing unemployment
- Increasing out-of-pocket healthcare expenditure

"More people are paying out-of-pocket for healthcare because they have **lost access to employee benefits."**
Judy Varndell, Consultant, Deloitte & Touche

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Source: Dr. Ben Chi, Trading Economics

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Zambia has a system of nationalized healthcare that is chronically underfunded

Few healthcare professionals

Education system does not produce enough medical professionals

Many leave the public sector for private practice or go to other countries for higher salaries

Deteriorating infrastructure

Budget is **insufficient** to maintain **infrastructure** at public facilities

Lack of training prevents equipment upkeep

Supply shortages

Budget shortfalls create shortages of medications and supplies

Due to these barriers, as well as a lack of preventative care, women often arrive at UTH with advanced stages of disease

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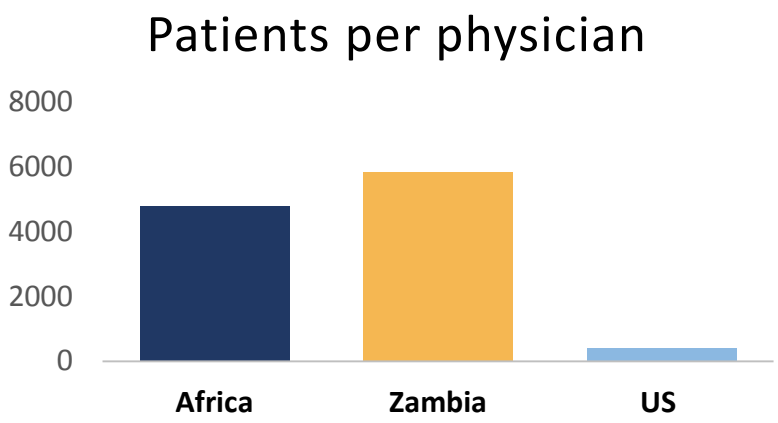
Source: Team analysis, UTH interviews

Zambia lacks personnel to provide quality care, health outcomes remain among the worst in the world, and…



Health category	Data	World rank
HIV/Aids prevalence	**12.3%**	7th highest
Life expectancy	**58 years**	18th lowest
Total fertility	**5.3 per woman**	Very high

UNC has been instrumental in reducing HIV prevalence in Zambia and surrounding countries over the past two decades

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Source: 2015 CIA World Factbook, Zambian Demographic and Health Survey 2013-14

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…women's health outcomes are especially poor

"Zambia is an epicenter of deaths during labor and from cervical cancer"

Dr. Groesbeck Parham, UNC OB/GYN faculty based at UTH in Lusaka, Zambia

Maternal health indicators	Rate per 100,000
Cervical cancer mortality	53
Infant mortality	4,500
Medically unattended deliveries	36,000
Maternal mortality	398

Women's health is the next priority for UNC's work in Zambia

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Source: UNICEF; Zambian Demographic and Health Survey 2013-14

UTH and UNC are strong partners positioned to improve women's health in Zambia

Introduction to Zambia

UNC-UTH Collaboration

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Impact and Next Steps

UTH is Zambia's primary teaching hospital, treating the country's most high-risk patients

UTH Vision

*"..to be the **center of excellence for health care** in the country and the region by providing **innovative treatment** interventions through **ongoing research.**"*

Snapshot of UTH

UTH was founded in Lusaka in **1964**

2,000 beds

402 OB/GYN beds

20,000 births per year

Up to 18 C-sections per day

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Source: Interviews with UNC-Zambia, UTH website

As the heart of medical training in Zambia, UTH can be the impetus for improving medical care nationally

Training

UTH is the **primary** public teaching hospital in Zambia

Doctors train at UTH and move to other regions of Zambia

Patient Care

UTH is the **only** tertiary public hospital in Zambia, and serves the nation's most high-risk patients

Improved **facilities, care, and training** at UTH will benefit the Zambian healthcare landscape as a whole

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Source: Dr. Ben Chi, team analysis

UNC's previous successes in Zambia demonstrate its potential for high impact at UTH

Conducted **55 studies** in HIV, women's and child health

Secured **$70M** in grant funding for research

Trained **10,000 clinicians** in **HIV prevention and treatment**

44 faculty years spent teaching in Zambia

Managed funding of **$210 M** over 10 years

Fostered deep partnerships with MoH, UTH, and other NGO's

Strong emphasis on **innovation**

256,000 HIV patients started on Anti Retroviral Therapy

1,300,000 women received Prevention of Mother to Child Transmission Services

90,000 women screened for cervical cancer

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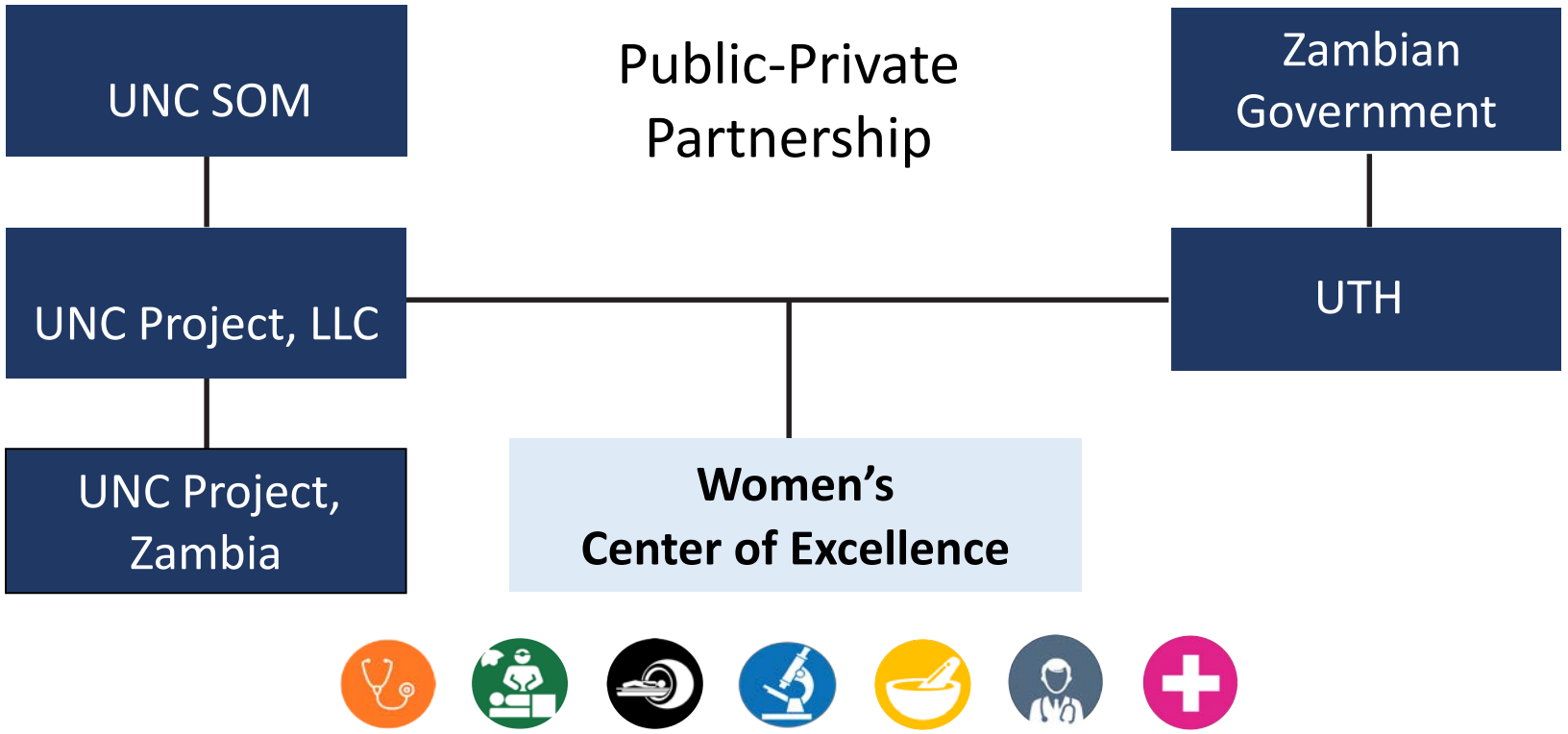
Source: Dr Ben Chi, UNC Work in Zambia 2001-2012

UTH and UNC's School of Medicine will collaborate to operate the Women's Center of Excellence as a PPP



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There are seven major components to the UTH-UNC project in Zambia

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Clinical facilities


Surgical facilities


Imaging


Laboratory


Pharmacy


Private practice


Ancillary services

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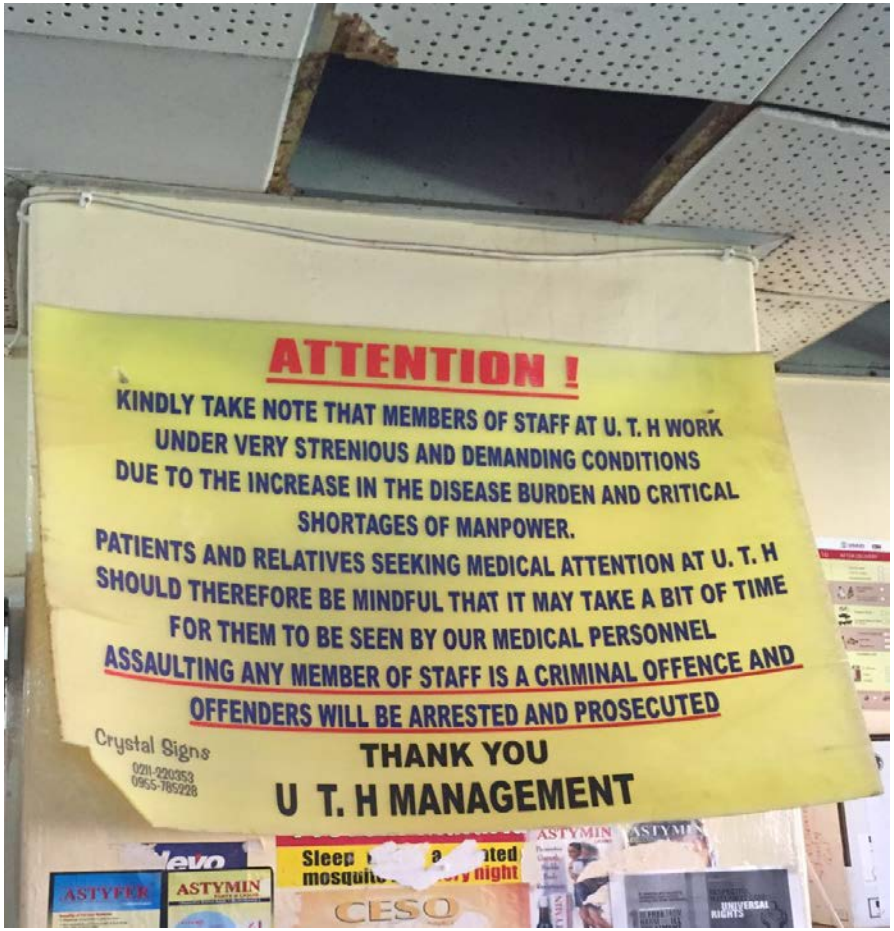
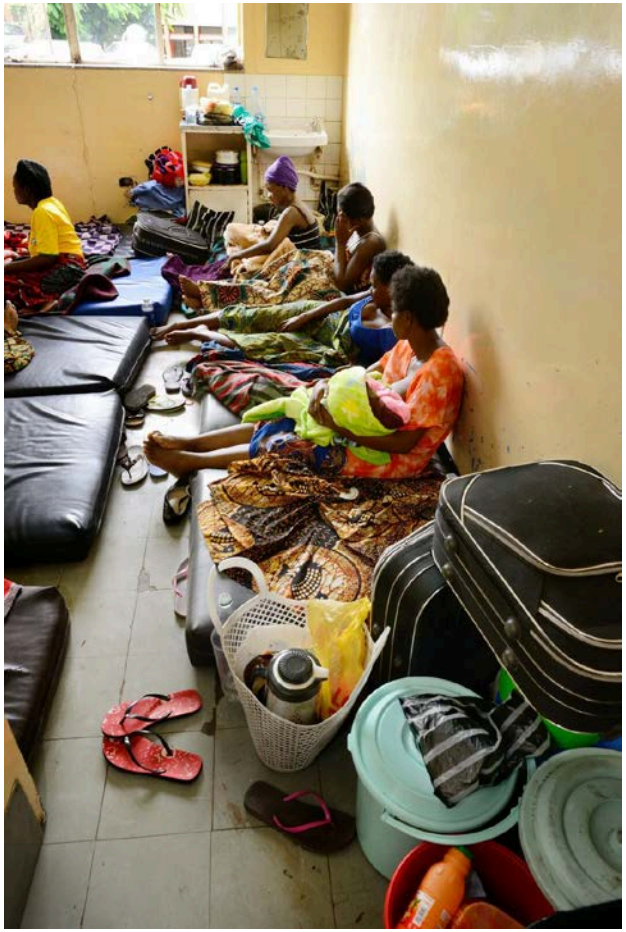
Clinical Facilities

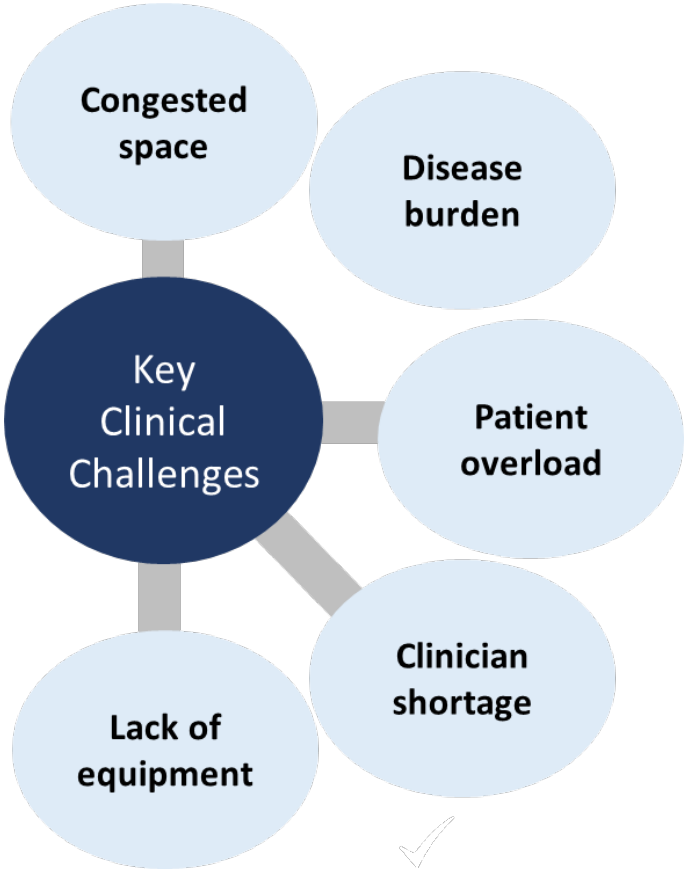
UTH faces overcrowding with limited health professionals and other medical resources





Source: UTH photos, team analysis

Congestion and lack of infrastructure lead to delays in treatment and patient complications



Clinic is split between OB in morning and GYN in the afternoon with an **average 5-minute consultation** per patient

Hypertension and diabetes are **comorbid in 30%** of pregnant mothers

10% of mothers deliver on floor mats at UTH

1:50 nurse-to-patient ratio in labor & delivery ward during some night shifts

25% of mothers' blood samples never make it to lab

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Source: Physician interviews, team analysis

Renovations and additions in space and equipment will improve delivery of care

Renovations

- Separate walk-in OB & GYN clinics
- Larger and specialized labor & delivery Space
- 9 OB & 12 GYN inpatient wards

New spaces

- High-risk infant care unit in L&D
- Adolescent counseling room
- 4 family planning rooms

New equipment

- 3 Ultrasounds
- 150 new beds
- Records database
- Clinical laboratory storage

Increased specialization and capacity will enhance the ability to care for incoming patients

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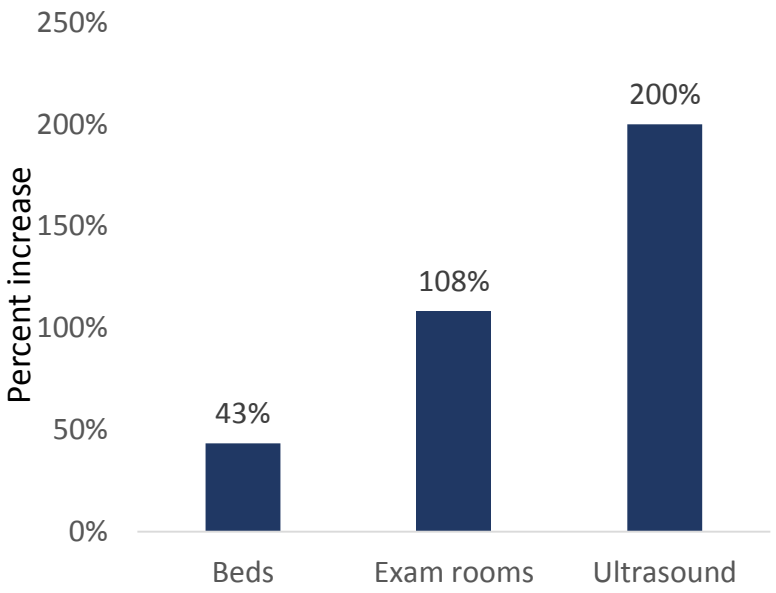
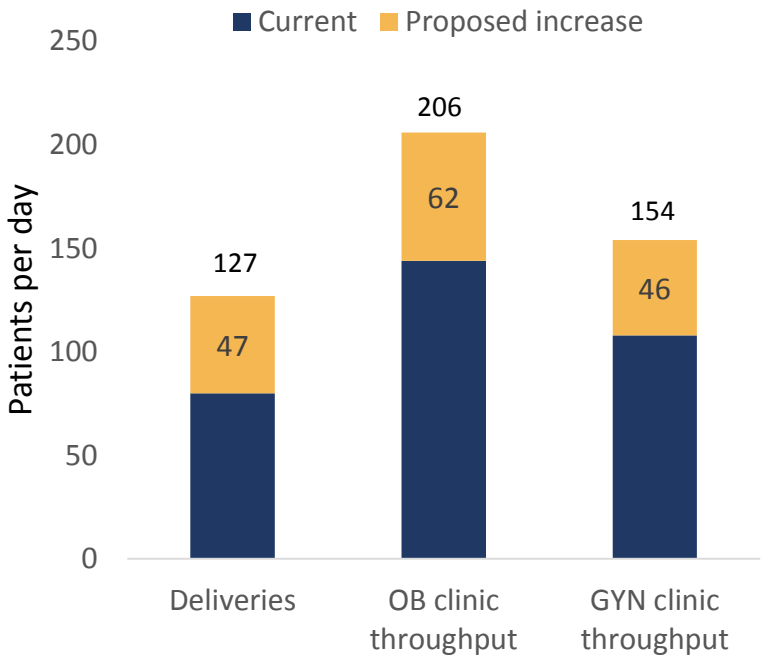
Source: Physician and nurse interviews, team analysis

Specialized clinical space and modern equipment will lead to more reliable diagnoses and efficient treatment

Increased clinical capacity…



…allows more patients to be seen



New clinical space and capacity will enable UTH to hire and train more medical professionals

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Source: Physician and nurse interviews, Interview with Dr. Kosanka, team analysis

Surgical Facilities

OB/GYN surgical facilities have insufficient resources, causing delays in care and poor outcomes

Obstetrics

Three operating theaters exist, but often only **one or two** are functioning

Gynecology

Surgery for gynecologic cancers is limited to only **one day** per week

Key Risks

Insufficient staffing of nurses & anesthetists

Lack of supplies necessary for surgery

Unsterilized instruments and operating rooms

UNC SCHOOL OF MEDICINE

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Source: Site visits and clinician interviews

The UNC Project will add four operating theaters, improve functionality, and enable timelier procedures

Obstetrics

The current obstetric operating rooms will be renovated as modern theaters

Gynecology

Four new theaters will be dedicated to performing gynecologic surgeries

Features		
	Laminar flow equipment for **sterile procedures**	**Improved lighting** for surgeons and surgical assistants
	Theaters organized for **streamlined operations**	Future potential for **laparoscopic** procedures

UNC GLOBAL WOMEN'S HEALTH

Source: Site visits and clinician interviews

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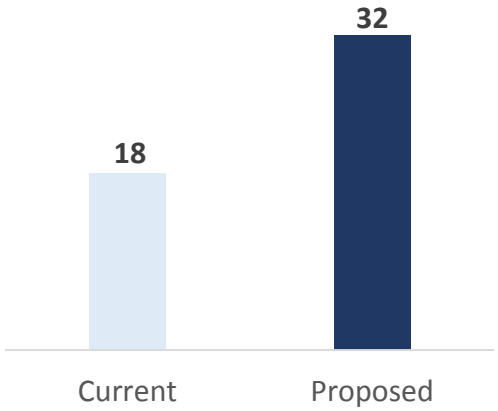
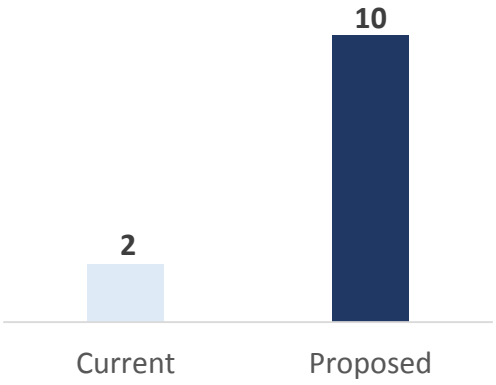
Improved patient outcomes will result from increased capacity and better facilities

Daily C-section capacity



UTH treats the highest risk patients, so the expected C-section rate will be **greater** than Zambia's overall rate of 19%

Weekly GynOnc surgery capacity



Dedicated gynecologic surgery facility will **decreases waiting time**, eliminating the current 12-week backlog

Sterilization

New, sterile equipment and theaters will reduce the likelihood of **patient infection**

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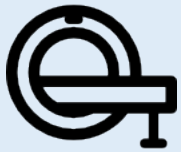
Source: JAMA, clinician interviews

Imaging

UTH's imaging department does not have adequate resources to fully diagnose women's health issues

Ultrasound	X-ray	CT scan	MRI	PET scan
				
OB/GYN has 1 of only 3 total functional ultrasounds at UTH	Only two functional full-size X-ray machines serve the entire hospital	The one and only 128-slice scanner is inadequate to serve a large teaching hospital	Patients are sent to the Cancer Diseases Hospital for MRI services	No PET technology exists in the region

Overall challenges

Maintenance issues
Frequent repair delays
Lack of funds leads to significant downtime

Staffing & training
On-the-job training is insufficient for advanced procedures

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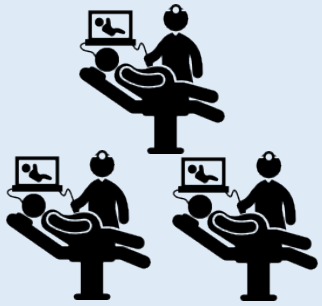
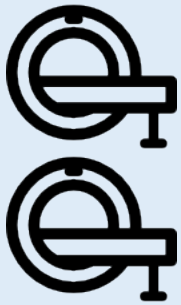
Source: Site visits and clinician interviews

A newly-designed imaging center will specifically support women's health

Ultrasound	X-ray	CT scan	MRI	PET scan
				
Three dedicated ultrasounds with radiographers will support women's health	A full-size X-ray machine will remove reliance on the limited availability at UTH	Two CT units, in addition to the unit currently in the hospital, will aid doctors' diagnostic capabilities	An MRI will eliminate waiting for excess capacity at CDH	PET technology will put UTH at the forefront of modern medical technology in Zambia

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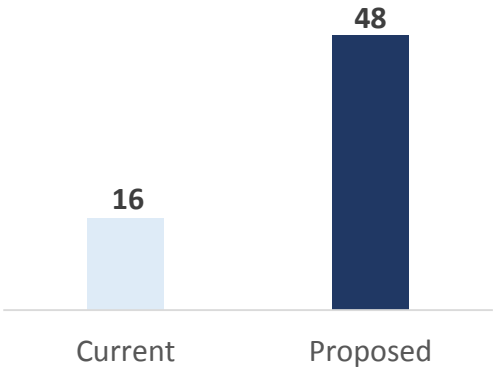
Source: Site visits, clinician interviews, team analysis

A dedicated imaging facility with appropriate support will enhance doctors' diagnostic capabilities

Prenatal Care

Dedicated ultrasounds within the center will enable prenatal care for **72 women** every day

Daily scan capacity



New CT, MRI and PET technology will **triple the capacity** at UTH for accurate diagnosis of cervical cancer

Financial sustainability

Funds from high-cost patients could **raise $136,500** annually for free treatment

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Source: American Cancer Society, NHS

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Laboratory

Limited laboratory capabilities inhibit timely diagnosis and patient treatment

Limitations

Personnel	Facilities	Operations
Underpaid Understaffed Undertrained	Outdated equipment Inadequate lab space and waiting area	Poor test results tracking Deficient inventory management Indirect supplier contact Patients deliver results

Responses

Outsourcing	Stock-outs	Backlog	No follow-ups	Misplaced results

Consequences

Delayed diagnosis	Untreated patients	Increased costs

UTH's laboratories perform an array of tests, but quality-seeking patients use private laboratories, which send complex tests to South Africa

Source: UTH & UNC Laboratory Interviews

The Women's Center will address current laboratory limitations

New facilities

A **larger lab space** with **new equipment** will allow for privacy and reliable, advanced in-house testing

Highly-trained personnel

Sufficient number of technical and support staff **with expertise** to meet patient demand

Lab management system

Electronic inventory and test results tracking, reducing time, costs, and stock-outs

Short-term solutions via **telepathology** with UNC

Long-term solutions via **local training** & **competitive incentives**

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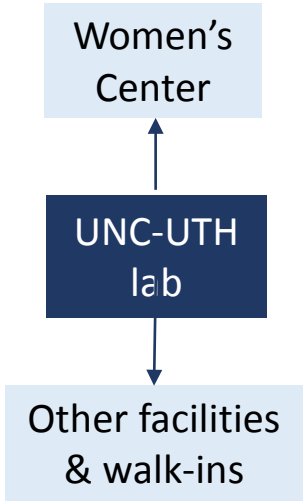
Source: UTH & UNC Laboratory Interviews

A laboratory with more accurate and faster lab results will improve patient care at UTH and in Lusaka

Outcomes	
1	day max to return routine test results (compared to 7 days)
6	hours max to return urgent test results (compared to 2 days)
70%	reduction in errors from lack of automation
8	additional critical diseases able to diagnose in-house
150	additional annual student shadowing opportunities



The lab will also offer services to other UTH departments, private clinics, and walk-in patients to generate up to $1.2 million in revenue per year

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Source: UTH & UNC Laboratory Interviews; Clinical Laboratory News

Pharmacy

UTH patients have unreliable access to affordable medications

UTH pharmacies

Medication budget has decreased by 47% from 2015 to 2016

Frequent stock-outs necessitate referrals to expensive private pharmacies

Insufficient staffing to serve patient volume

Ridgeway Pharmacy

Private, for-profit retail pharmacy at UTH entrance

Effective **monopoly**, charging high medication prices

1,100+ customers per day

Other pharmacies

Primarily **single outlets**

Charge **high margins** for quality medications

Front-end store is significant component of revenue

Patients are often forced to pay high prices for essential medications

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Sources: Interview with UTH chief pharmacist, interview with WHO Essential Medicine and Drug Policy Advisor, UTH Activity Based Annual Budget (2016), team analysis

An onsite retail pharmacy will serve OB/GYN patients in addition to patients from throughout UTH

Future Vision

- Anticipated volume of **300+ patients per day**
- Ward-based pharmacy plus **2,000 ft^2** new facility
- Formulary matching UTH essential medications list
- Inventory management using Revolving Fund Pharmacy* model to provide **affordable alternative for out-of-stock medications**

Capture Patient Volume

Collaborative relationships with physicians

Reliable supply priced cheaper than private pharmacies

Innovative Meds to Beds** delivery program

*Revolving Fund Pharmacy
**Meds to Beds

UNC GLOBAL WOMEN'S HEALTH

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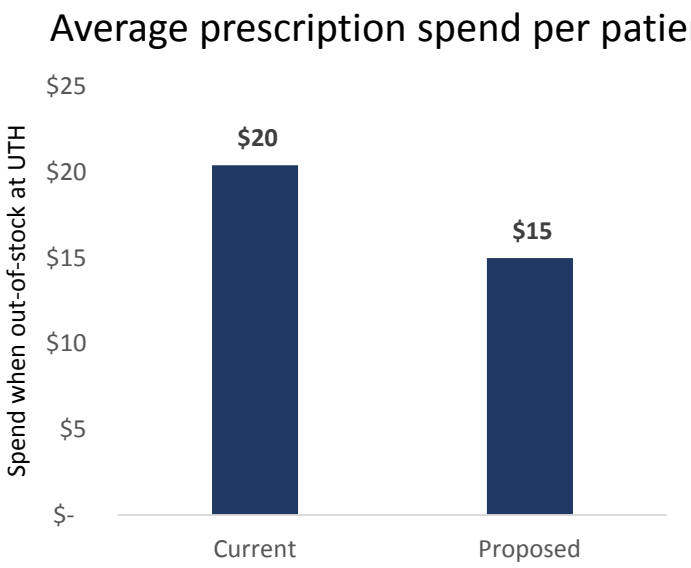
Sources: Interview with UNC pharmacist, interview with RFP director in Kenya, team analysis

Pharmacy will increase availability of medication for patients through fewer stock-outs and lower prices



At least **25% reduction in patient financial burden** from filling prescriptions

Individual patient and healthcare system benefits

Decrease stock-outs, enabling **greater accessibility to free medication**

Lessen travel and time burden on patients seeking stocked out meds

Proper medication discharge can lead to a **33% decrease** in readmissions

Better access to prescriptions will improve medication adherence and outcomes, lessen readmissions, and lower the long-term cost to Zambia's healthcare system

A well-managed pharmacy at UTH has the potential to generate an annual revenue of **$700,000** with all surplus supporting operating expenses of the women's center

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Source: Becker T., Ketchum R., Capturing New Sources of Revenue with a Hospital-Owned Outpatient Pharmacy, *Comprehensive Pharmacy Services*, team analysis

Private Practice

Physicians currently do not have an effective system to operate their private practice

Clinicians do not generate sufficient personal revenue by working at UTH, therefore they find alternative ways to see private patients either at UTH or in the community

Private practice problems

- Disorganized management and patient flow because private and public patients are mixed
- Clinicians leaving the UTH campus constrains learning opportunities for trainees
- Lack of streamlined system of care compromises treatment of private and public patients
- Clinicians leaving the UTH campus prevents timely treatment of hospital patients

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Source: Client interviews, team analysis

The PPP will manage a private practice on UTH's campus to support physicians and the women's center

This facility will also appeal to patients who do not currently come to UTH

Vision for new private practice

Physicians see private patients in a facility on UTH campus but practice independently of UTH and the MoH

Physicians have allocated times to serve patients in the private clinic outside of their work at UTH

The PPP disperses private practice revenue to physicians and uses discretionary revenue to improve the women's center

~10,000ft^2 new construction

- 15 provider offices
- 5 exam rooms
- 2 administrative offices
- 2 nurses stations
- 2 procedure rooms
- 2 family planning consultation rooms
- 1 ultrasound
- 1 fetal monitor

UNC GLOBAL WOMEN'S HEALTH

Source: Client interviews, team analysis

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A PPP-managed private practice in the new facility will benefit physicians, patients, and trainees

Faculty physicians

Better proximity to patients

Better opportunity for streamlined care

More efficient operations and better incentives

Patients

Access to a distinct medical experience and proximity to hospital services

Trainees

Around-the-clock access to teaching physicians and patients seeking treatment

Private practice capacity will **increase by 200%,** from 11,500 visits per year to 33,700 annually

The new private practice model will generate roughly $708,750 for physicians and $303,750 for the PPP annually

UNC GLOBAL WOMEN'S HEALTH

Source: Client interviews, team analysis

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Ancillary Services

This project will include ancillary facilities, enabling a self-contained and fully operational women's hospital

New facilities

- Laundry
- Kitchen
- Dining facilities
- Central sterilization
- Generators

Ancillary facilities will benefit patients and physicians while supporting 24x7 operation

UNC GLOBAL WOMEN'S HEALTH

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We are proposing a sustainable model for world-class healthcare and medical education in Zambia

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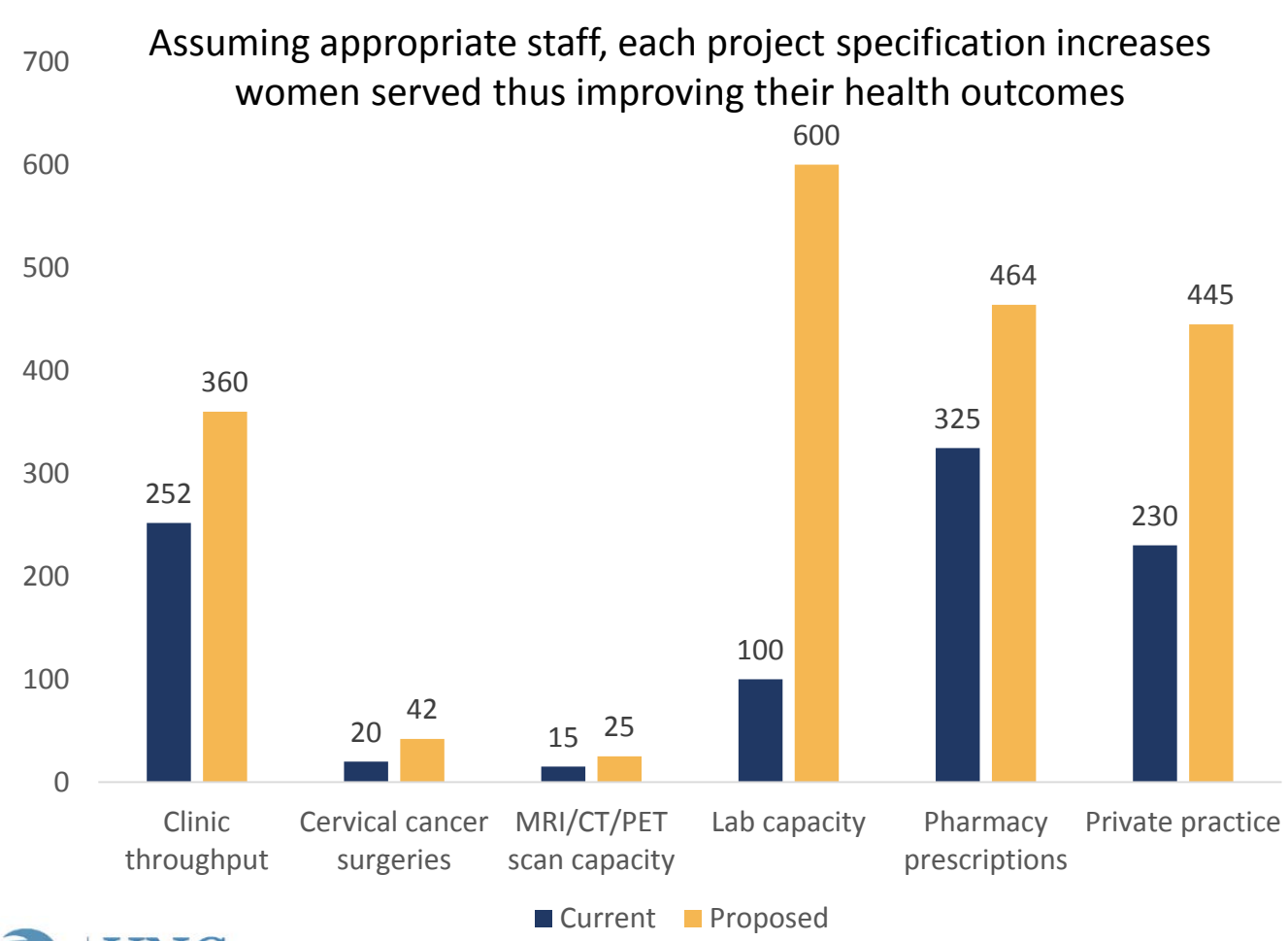
Private practice

The proposed women's center will improve patient outcomes by integrating all aspects of care



Increased capacity leads to:

- Consultation time increases by **10m per patient**
- **Elimination** of critical surgery backlog from theater constraints
- **8 more critical diseases** can be diagnosed from increased lab menu

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

This project will benefit Zambia's economy as a whole

Direct investment

$96M

Indirect + induced investment

$101M

Job creation

1,000 construction and trade jobs

$197M investment in Zambian economy

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: IMPLAN, team analysis

The UTH-UNC partnership offers a unique training and management program that has room for expansion

"We would like more training, so that we can better treat our patients."

UTH OB nurse

600 allied health professionals trained by UNC

2,000 ft^2 teaching facility

- Auditorium
- 2 Demonstration rooms
- 3 Tutorial rooms
- Faculty Offices
- Board room
- Biology and chemistry labs

UNC will train other UTH professionals in:

- Surgery
- Biomedical engineering
- Pharmacy
- Maintenance
- Hospital administration
- Quality improvement

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Physician and nurse interviews, Interview with Dr. Kosanka, team analysis

UTH can serve as a best practice example of a sustainable hospital

Greenstar certification criteria

- Management
- Indoor environment quality
- Energy
- Transport
- Water
- Materials
- Land use and ecology
- Emissions
- Innovation

Electronic Medical Records

Reduce paper waste at UTH

Eliminate duplicate lab tests

Facilitate care coordination

UNC GLOBAL WOMEN'S HEALTH

Source: Greenstar, team analysis

GBP GLOBAL BUSINESS PROJECT

This project will comprise 187,000 sq. ft. and require an initial investment of approximately $96 million

Component	Size, sq. ft.	Construction and outfitting cost	Full cost, plus 30% contingency
Obstetric surgery	47,983	$18,793,098	$24,431,027
Gynecologic surgery	66,016	$24,456,023	$31,792,830
OB/GYN clinics	20,412	$6,751,025	$8,776,332
Lab & pharmacy	8,528	$4,249,417	$5,524,242
Imaging center	6,594	$4,965,715	$6,455,430
Ancillary services	16,422	$8,278,920	$10,762,596
Teaching facilities	20,870	$6,674,136	$8,676,377
Total	**186,825**	**$74,168,334**	**$96,418,834**

After initial capital expenses, revenue streams from imaging, laboratory, pharmacy, and private practice facilities will support sustainability

Revenue streams from several components will support operational sustainability

Projected annual figures	Imaging	Laboratory	Pharmacy	Private Practice	Total
Revenues	664,200	1,156,313	588,661	303,750	2,712,924
Expenses	527,700	932,582	435,101	90,000	1,985,382
Net revenue	$136,500	$223,731	$153,561	$213,750	**$727,542**

Total net revenue for the women's center will depend on PPP contract specifications

The four major revenue components will generate roughly $728,000 in net revenues per year

Executive Summary

UNC and UTH will improve patient outcomes, train Zambian clinicians, and create a sustainable healthcare delivery model

Clinical facilities	Surgical facilities	Imaging	Laboratory	Pharmacy	Private practice	Ancillary services
						

This **$97 million** women's hospital capital project will provide treatment for **157,600** women and train **600** Zambian clinicians per year

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Thank you

Appendix page 1

Primary and Secondary Sources
Recommendation for components within the PPP
The new commission allows UTH to realize its viable healt...
The Women's Center of Excellence commission is multi-phas...

Background Information

Additional Zambian health information
The Cancer Diseases Hospital on UTH's campus is an appropriate benchmark for the new Women's Center

Clinical Facilities

Congestion and lack of infrastructure lead to delays in t...
In Vitro Fertilization (IVF) has a large market in Zambia and clinical potential to generate revenue
A snapshot of current GYN/ONC clinical services at UTH
Current clinical capacity
Assumptions for Increased Clinical Throughput
Assumptions for Increased Delivery

Surgical Facilities

Surgical facility analysis

Imaging

The need for improved imaging at UTH is substantial, for women and patients at-large
High-cost patients have the potential to significantly contribute to revenue
Financial sustainability is possible within the imaging f...

Laboratory

The lab will prioritize the Women's Hospital, but will benefit from servicing other health care facilities
Telepathology is a popular practice to remotely fill the ...
HIV Resistance testing and early infant HIV diagnosis are...
Laboratory Surplus Estimate
Assumptions for laboratory revenue generation figure
Assumptions for laboratory revenue generation figure
Equipment Depreciation: Estimate Break-down

Pharmacy

Stock-outs and high retail margins are common throughout Sub-Saharan Africa
The Revolving Fund Pharmacy model in Kenya compliments government stock-outs
Revolving Fund Pharmacy (RFP) model will defray startup costs
Traditional hospital retail pharmacies have low-prescription capture rates
Meds to beds programs in the US can more than double prescription capture

Appendix page 2

Pharmacy (cont.)

Currently, prescription capture at UTH is much higher, but Ridgeway Pharmacy has monopoly on stocked-out medications
Key capabilities to consider when hiring Meds to Beds liaisons
Pharmacy pro forma
Future expansion of retail pharmacy has the potential to provide significant additional revenue
Establishing a successful retail pharmacy will require both local and international expertise

Private Practice

The new private practice model will help physicians balance their duties at UTH and their private patients
Using a PPP management model between UTH and physicians optimizes revenue and resource allocation
Theoretical capacity gain for private practice
Private practice revenue projection

Impact and Next Steps

Critical success factors for the Women's Hospital surround relationships, supply chain and management
Once sufficient funds are procured, four steps are essential to begin operations at UTH

Space requirements

UTH has a site facing the current maternity department with adequate space for the new women's hospital
Space Requirements: Obstetrics renovation (Imperial)
Space requirements: All new construction (Imperial)
Space requirements: Obstetrics renovation (metric)
Space requirements: All new construction (metric)

Primary and Secondary Sources

Physicians
- Dr. Mwanahamntu, Firm E Consultant
- Mr. Mwandila, Firm C Consultant
- Dr. Gertrude Tshuma G, Firm B Consultant
- Dr. M. Chisembele, Firm D Consultant
- Dr. Zyembo, Firm C Consultant
- Dr. R. Mwila, Firm B
- Dr. Gostion Kasanda, Firm D Consultant
- Dr. Lackson Kasonka, Firm E (past superintendent)
- Dr. S Chisele, Firm E Consultant
- Dr. S. Macha, Firm E Consultant
- Dr. Ahmed (past superintendent)
- Dr. Grospeck Parham, Firm E UNC Faculty
- Dr. Elizabeth Stringer, UNC Faculty
- Dr. Clarke-Pearson, UNC Chair of Gyn-Onc Department

UNC Global Fellows
- Dr. Catherine Ford
- Dr. Marsela Castillo
- Dr. Stephanie Sullivan

Pharmacy
- Kayley Lyons, PharmD, MS, UNC Clinical Pharmacist
- David Steeb, PharmD, MPH, UNC Eshelman School of Pharmacy Director of Global Engagement
- Amanda Corbett, PharmD, UNC Eshelman School of Pharmacy
- Imran Manji, Pharmacist, Director of AMPATH's Revolving Fund Pharmacy, Kenya
- Angela Chisembele-Taylor, Pharmacist, MBA, Zambia
- Ivin Chibanda, Pharmacist, Zambia
- Billy Mweetwa, Pharmacist, WHO Essential Medicine and Drug Policy Advisor, Zambia
- Christopher Sakala, Pharmacist, Director of Apex School of Pharmacy, Zambia
- Enock Chikatula, Pharmacist, Director of UTH Pharmacy, Zambia
- Davies Kampamba, Pharmacist, Director of UTH OB/GYN Pharmacy, Zambia

Consultants
- Tonya Taylor, The Gift Development Inc.
- Deloitte, Central Africa unit
- Kurt Salmon
- Geoffrey Silwizya, Local Consultant

Secondary Resources:
- UTH Annual Report 2014
- USAID Reports on UTH, African Healthcare
- World Bank Report, *Doing Business in Africa*
- IFC and WHO Reports on Healthcare in Zambia and Africa
- UC System Cost Reports

Nurses
- Sister in Charge of Ward B1
- Sister in Charge of Ward B3
- Sister in Charge of Walk-in Clinic
- Sister in Charge of Wards B11/B12
- 2 Head Nurses of High-Cost wards
- 2 Head Nurses of Standard Wards
- 4 Sisters in Charge of GYN wards
  Consultants
- 1 Midwife

Architects
- Dudley Lacy, Former President of O' Brien/Atkins Associates
- National Council for Construction
- Ministry of Works and Supply
- BICON
- Anderson & Anderson International
- Collins Sitali, Project Manager

Administrators
- Director of Cancer Diseases Hospital
- Chief Accountant
- Purchasing Officer

Hospitals/Private facilities
- Visited Levy Mwanawasa
- LANCET Laboratories
- Ridgeway Pharmacy
- Link Pharmacy
- Cancer Diseases Hospital
- UTH Pediatric Center of Excellence
- Natalie J. Gill-Mensah, MBA, MSPH, Senior Manager at Clinton Health Access Initiative, Inc.

Laboratories:
- Humphrey Mwape, UNC Container Laboratory Technician and former CIDRZ employee
- Angel, UTH Cytology Laboratory Technician
- Innocent Mwape, Laboratory Technician and Drug Resistance Supervisor, CIDRZ
- Marketing Manager, Nkansa/Lancet Laboratory (interviewee name not listed because specific reason for interview was not disclosed given competitiveness of labs)

Recommendation for components within the PPP

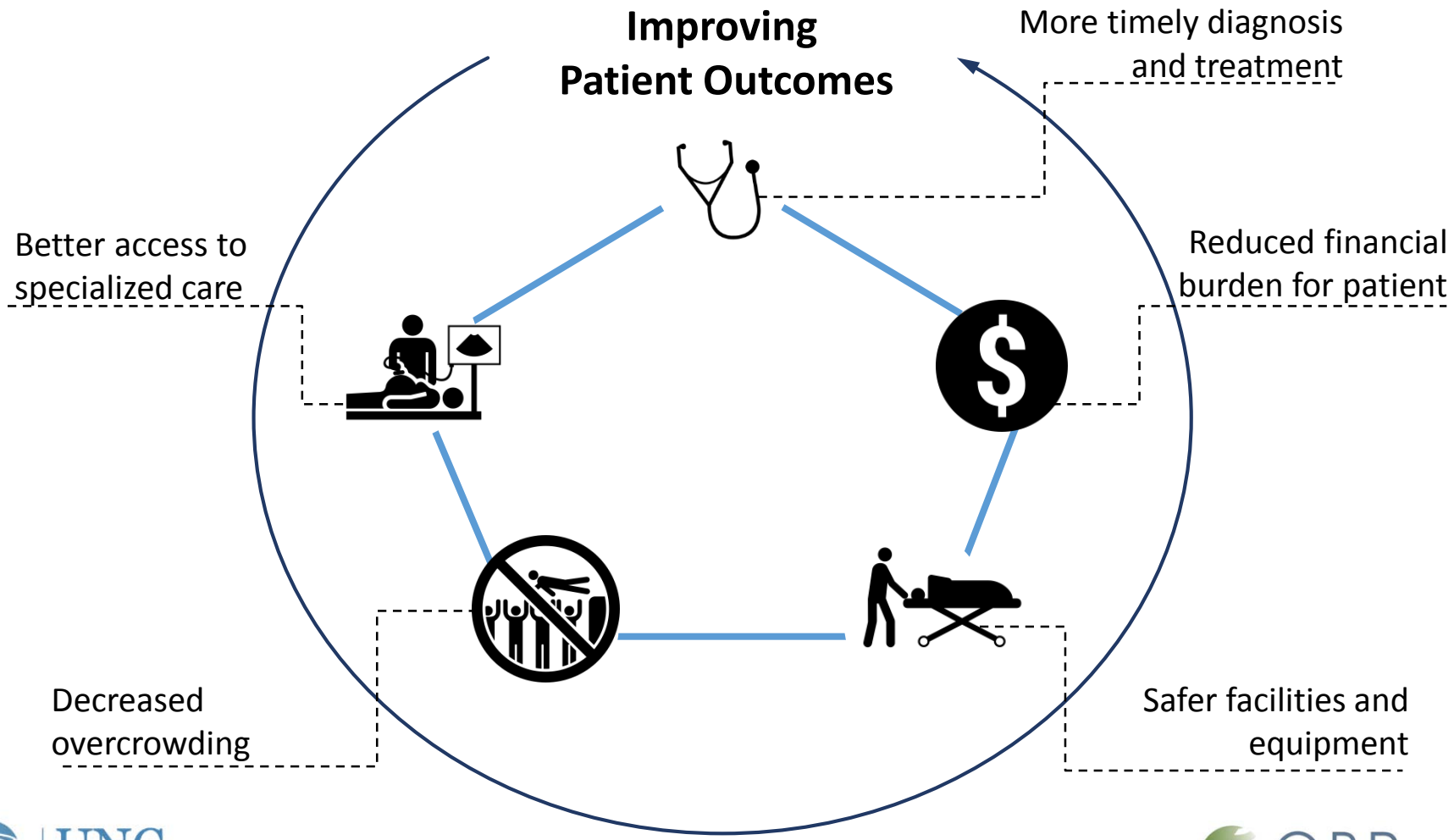
Private	Private-Public	Public
Private Practice Will manage to promote accountability and incentives	**Imaging** Will serve OB/GYN patients through Imaging's MoH grant and then charge for others' use of excess capacity	**All clinical and surgical** Will absorb existing MoH grant that UTH allocates to OB/GYN
Pharmacy Will operate retail and OB/GYN via department drug grant	**Laboratory** Will serve OB/GYN patients through Laboratory's MoH grant and operate private lab	**Commercial kitchen** Will absorb existing MoH grant
Dining services Will manage		**Commercial laundry** Will absorb existing MoH grant
Public laundry Will manage		
PPP will completely manage and receive **all revenues** to reinvest into Women's center	PPP will manage and receive **some revenues** from excess capacity and private patients	PPP will manage and supplement gaps in MoH grant funding, receiving **no revenues**

UNC GLOBAL WOMEN'S HEALTH

Source: Team analysis

GBP GLOBAL BUSINESS PROJECT

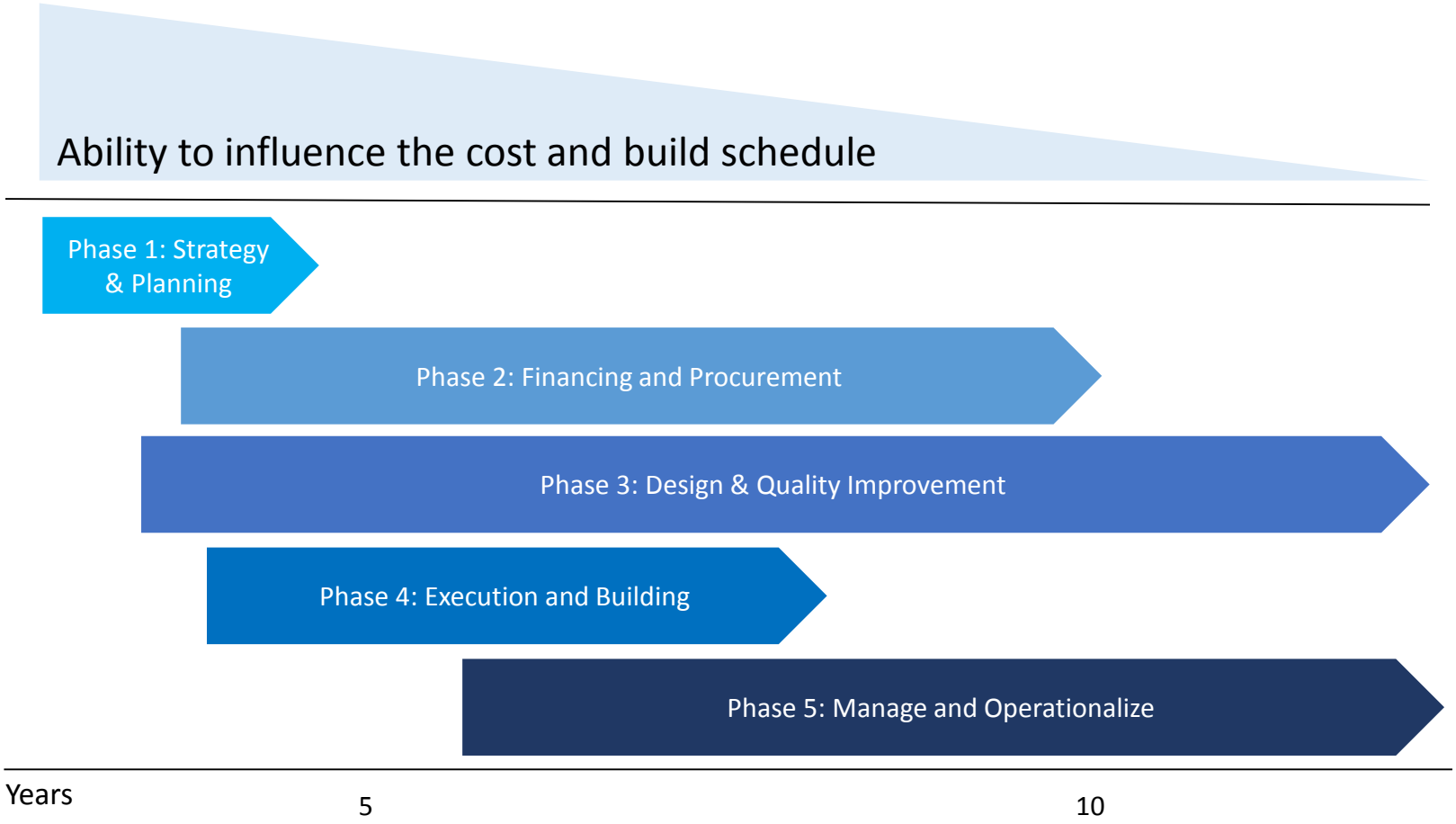
The new commission allows UTH to realize its viable healthcare ambitions through a positive feedback loop



UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

The Women's Center of Excellence commission is multi-phased for efficient hospital development

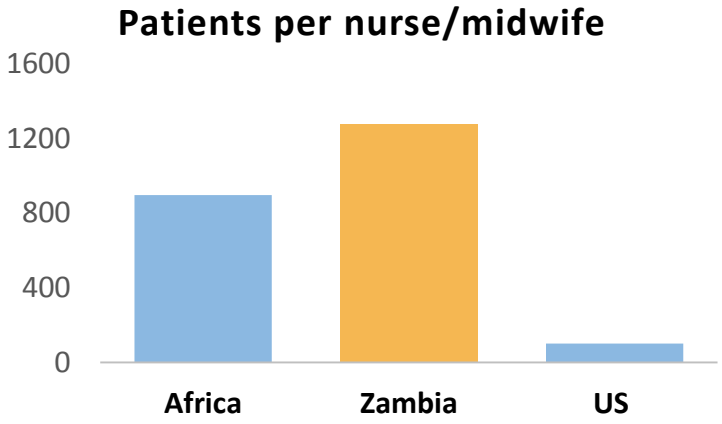


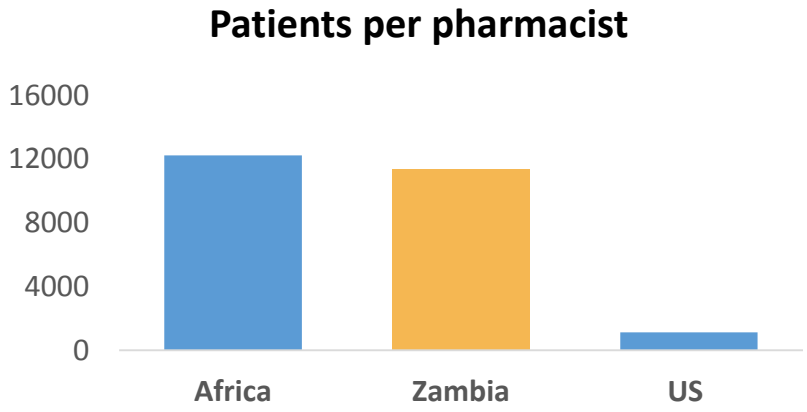
UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Team Analysis, Deloitte Hospital Activation Framework

Additional Zambian health information





Health Category	Zambian Data	US Data
Low birthweight	**11%**	**8%**
Use of improved drinking water	**64.1%**	**98.8%**
Overall health system	**182 out of 191**	**37 out of 191**
Teenage fertility rate	**9.3%**	**2.4%**

UNC GLOBAL WOMEN'S HEALTH

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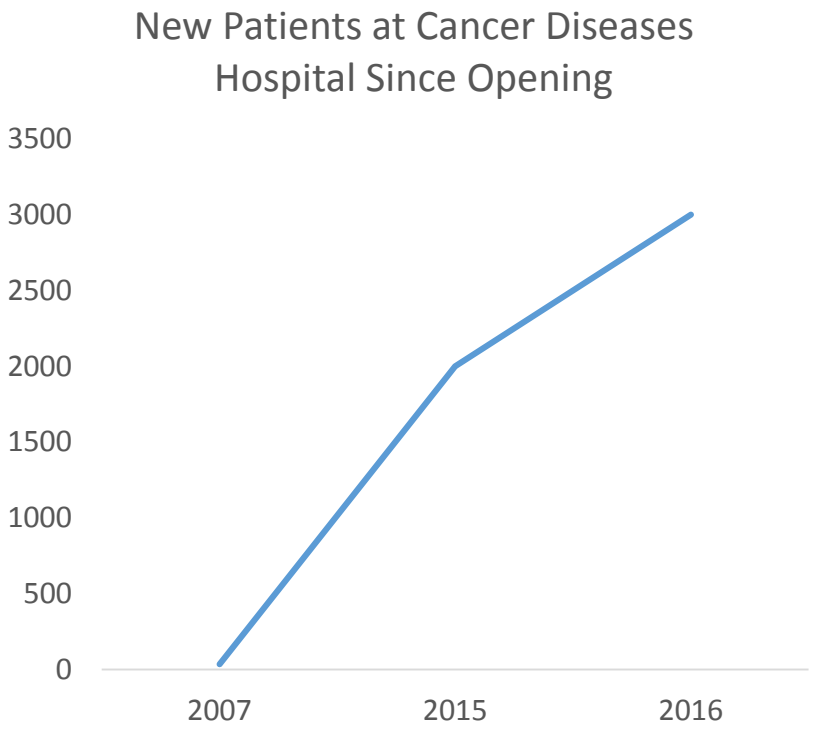
Source: UNICEF, World Bank

Aspects of the Cancer Diseases Hospital on UTH's campus are benchmarks for the new Women's Center



CDH is sister institution to UTH

- Newly expanded hospital with over 500+ beds within 4 floors
- Started with 4 oncologists→ currently 6 and beginning to plan a training program because all oncologists must be trained in South Africa
- Separate budget funded by MOH, PSMD, and Health Professions Council
- International Atomic Association funds a lot of radiology equipment
- Only deals with solid malignancies, all GYN oncology cases unresolved from surgery come to CDH for treatment

UNC GLOBAL WOMEN'S HEALTH

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Source: Team Analysis, CDH Visit

Project Specifications

Introduction to Zambia

UNC-UTH Collaboration

Project Specifications

Impact and Next Steps

UNC GLOBAL WOMEN'S HEALTH

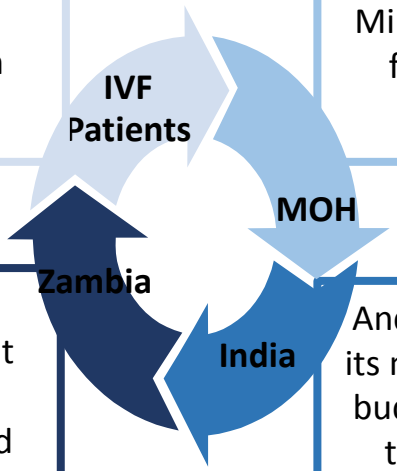
GBP GLOBAL BUSINESS PROJECT

Clinical Services

A large In Vitro Fertilization (IVF) market exists in Zambia but patients are treated in other countries, representing a foregone revenue opportunity for the private practice

When infertile mothers cannot afford or find fertility care in Zambia…

They send a petition to the Ministry of Health for treatment funding…



Which causes MOH funds that could potentially fund a UTH IVF clinic to leave Zambia

And the MOH uses its medicine abroad budget to fund IVF treatment and pregnancy care in India…

"The grief of infertility is sharper in poor countries. In Africa and much of Asia it carries a stigma, nearly all borne by women. A "barren" wife is often ostracized, beaten or abandoned, or infected with HIV/AIDS as a result of her husband straying in the hope of a child. She is at higher risk of being murdered or committing suicide."
The Economist

There are currently 2 private IVF clinics in Lusaka, so demand exists

- Lusaka IVF and Fertility Clinic
- Zambia One World

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Team Analysis, Physician interviews, The Economist

Current clinical capacity

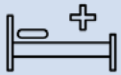
5 firms (Med Team)

2-3 Consultants
2-3 Registrars
6+ Mmeds and/or students

1 nurse : 6 patients

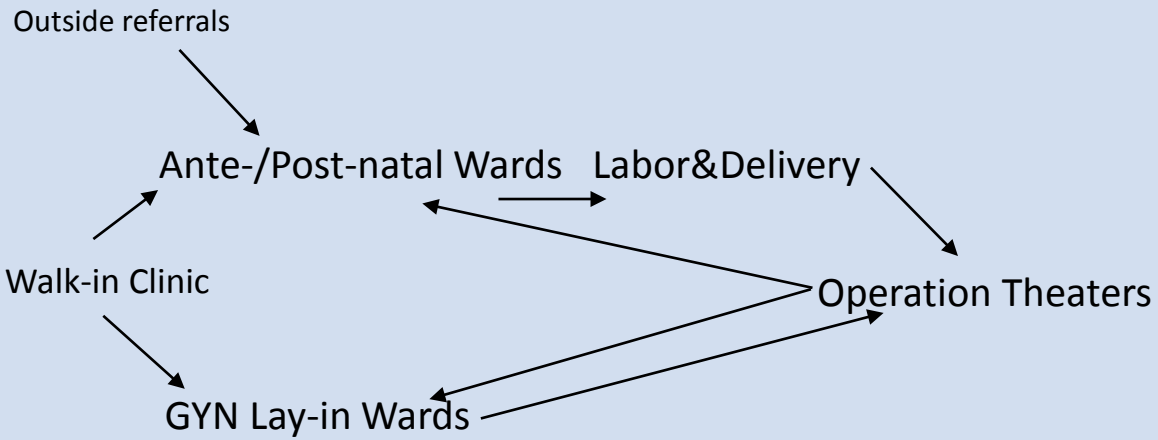
2 Head nurses
6 Sisters-in-charge
1-2 Midwives
1+ Nurses

4 OB & 4 GYN wards



1 labor & delivery ward
~36+ beds each
12 walk-in exam rooms

Patient Flow



UNC GLOBAL WOMEN'S HEALTH

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Source: Team Analysis, Physician interviews, Nurse Interviews

A snapshot of current GYN/ONC clinical services at UTH

- ✓ Shared Procedure Room
- ✓ Triage Area
- ✓ Shared Exam Room
- ✓ Shared Counseling Area

Services:

- ✓ Cancer Exams and Evaluation
- ✓ LEEP Procedure

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Assumptions for Increased Clinical Throughput

Inputs	OB	GYN	
Averge Min/Patient	15	20	
Average Visits/Hour	4	3	
Average Rooms in Clinic	12	12	
Shift Length	3	3	
	Current	Future increase	Future Total
OB Clinic Throughput	144	62	206
GYN Clinic Throughput	108	46	154
Total	252	108	**360**
Total:GYN Clinic Ratio	2.333333333		
Total:OB Clinic Ratio	1.75		

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Assumptions for Increased Delivery

Current beds	Current deliveries				
36	80				
Current delivery:bed ratio	**2.222222222**				
Future bed:delivery ratio	**1.25**	(to take into account increased bed capacity and thus more time in L&D for mothers)			
future beds	increase in deliveries	future deliveries			
80	20	**100**			
current c-section/day	Increase in c-sections	Future c-section/day			
15	17	**32**			
Additions with NICU					
spaces	decrease in infant mortality rate	successful nicu deliveries			
20	0.5	**10**			
Total current deliveries	Increase in delivery capacity	Total future deliveries			
80	47	**127**			

Surgical Services

Surgical facility analysis

According to the December 2015 JAMA paper Relationship Between Cesarean Delivery Rate and Maternal and Neonatal Mortality, 19% is the current optimal national rate for C-sections. Because of UTH's status as a referral hospital for complicated deliveries, the number will be higher in this center. Two rooms for C-sections would allow 22 deliveries per day, or a 24% average rate. Due to the variability of deliveries in a day, a third operating room would handle demand and allow for the expected future growth of Lusaka and Zambia's population.

OB ORs	Now	Future
Avg. deliveries	90	133
Avg. C-sections	10	**33**
Percentage	11%	25%

"We need an operating theater for advanced and elective (gynecologic) procedures and another for emergencies." *– Dr. Maureen Chisembele, gynecology consultant*

Imaging

The need for improved imaging at UTH is substantial, for women and patients at-large

Technology	Current functioning	Current non-functioning	Comments
Ultrasound	3	12	Often mobile units must be used by OB/GYNs, though trained radiographers would be preferable according to Dr. Chisele, acting head of OB/GYN.
X-ray	2 full	several	
CT scan	1	0	Often broken. Untrained radiographers. "Very high need" for more – Dr. Nkunde, head of radiology
MRI	0	N/A	CDH has one once they open, but no trained radiographers.
PET	0	N/A	Potential early plans for one near the airport. None at CDH.

UNC GLOBAL WOMEN'S HEALTH

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Source: JAMA, clinician interviews

High-cost patients have the potential to significantly contribute to revenue

We have had differing estimates on the number of patients that would pay high-cost fees, so below is a sensitivity analysis of the revenue-generating potential based on full utilization.

Utilization Function	Number	Unit	Total/Day	Total/Year	High Cost Fee	20% High Cost
CAT Scans/Day (2/hour/CT x 8Hr/Day)	16	per CT	32	8,000	$225.00	$360,000
MRI Scans/Day (1/hour/MRI x 8 Hr/Day)	8	per MRI	8	2,000	$312.50	$125,000
PET Scans/Day (1/hour/PET x 8 Hr/Day)	8	per PET	8	2,000	$312.50	$125,000
X-Rays/Day (4/hour/X-Ray x 8 Hr/Day)	32	per X-Ray	32	8,000	$12.50	$20,000
Fetal Ultrasounds (3/hour/Machine x 8 Hr/Day)	24	per Machine	72	18,000	$30.00	$108,000
					TOTAL	**$738,000**

Sensitivity Analysis	15% HC	20% HC	25% HC	30% HC
Cost recovery based on % of high cost patients	**$553,500**	**$738,000**	**$922,500**	**$1,107,000**

Source: JAMA, clinician interviews

Financial sustainability is possible within the imaging facility

Revenue	664,200
Cost of scans	151,200
Gross profit	513,000
Salary expense	0
Overhead	20,000
Depreciation expense	96,500
Maintenance	260,000
Net revenues	**136,500**

Assumptions	
Depreciation	5%
Overhead	20,000
Capacity Utilization	90%
% High Cost patients	20%

	Cost per machine	Total	Maintenance	Total	Supplies per scan	Total	
X-Ray	125,000	125,000	5,000	5,000	1	7,200	film
Ultrasound	135,000	405,000	10,000	30,000			
CT	300,000	600,000	50,000	100,000	20	144,000	contrast
MRI	300,000	300,000	50,000	50,000			
PET	500,000	500,000	75,000	75,000			
		1,930,000		**260,000**		**151,200**	

UNC GLOBAL WOMEN'S HEALTH

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Laboratory

The lab will prioritize the Women's Center, but will benefit from servicing other health care facilities

The Women's Center will be the laboratory's priority client to ensure patients and doctors receive timely lab results

1st Priority
Women's Center of Excellence

2nd Priority
Other UTH departments

3rd Priority
Other health care facilities, private clinics & walk-ins

By providing additional testing, the Women's Center will benefit 3 areas

Revenue
Patient care

Idle
resource time

UNC GLOBAL WOMEN'S HEALTH

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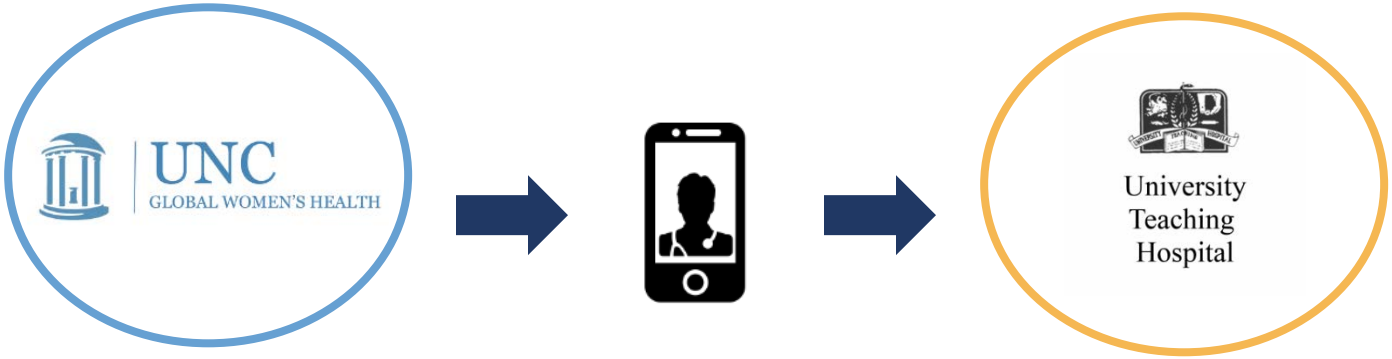
Telepathology is a popular practice to remotely fill the need for pathologists, but only for the short-term

Telepathology will allow UNC pathologists to fill the need at the Women's Center from a distance, which is similar to the partnership between UNC & the pathology laboratory at Kamuzu Central Hospital in Malawi



However, "telepathology…cannot be a substitute for training a sufficient number of [Zambian] pathologists and laboratory technicians"

UNC GLOBAL WOMEN'S HEALTH

Source: Institute for Global Health and Infectious Disease

GBP GLOBAL BUSINESS PROJECT

HIV Resistance testing and early infant HIV diagnosis are impactful opportunities for the new laboratory

HIV Resistance testing

This test is **currently prohibitively expensive at >$250** at local private laboratory facilities in Lusaka

Laboratory technicians connected with the UTH-UNC Women's Center Project have **expertise to decrease price by 50%**

Result would be increased access to test and more effective patient treatment

Early infant HIV testing

Only one department at UTH has this capability and **machine is broken-down 2/3 to ¾ of the time**

Without this test, infants with HIV-infected mothers are frequently **misdiagnosed with HIV** and **receive unnecessary treatment**

Result would be more accurate HIV diagnosis and decreased over-medication in infants

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source:Interviews with UNC Container Lab Technician and CIDRZ Laboratory Technician

Laboratory Surplus Estimate

	YR 1		
Revenue		ZMW 11,563,129.7	$ 1,156,313.0
COGS	7,284,771.7		
Gross Surplus	4,278,358.0		
SGA Expense	1,965,732.1		
Depreciation Expense	75,312.0		Need info on their fixed assets to determine.
Interest Expense	-		Need info on their expected debt to determine.
Surplus Before Tax	2,237,313.9		
Taxes	-		
Surplus (After Tax) ZMW		ZMW 2,237,313.9	
Surplus (After Tax) US$	$ 223,731.4		

Source: UTH/UNC Laboratory Financial Model Spreadsheet

Assumptions for laboratory revenue generation figure

Assumptions:		Notes
Current Test Volume (Avg Monthly)	3,000	Estimated from cytology
Expected increase with new lab	500%	Estimate based on expanded test menu and opening lab to walk-ins (majority of increase)
Expected Future Volume (Avg Monthly)	18,000	
Percent High Cost Tests	40%	
Price Per Test - High Cost Patient	ZMW 104.1	This figure is the average price per lab test at CIDRZ, weighted by volume. See "Cidrz Volumes & Price" tab.
Price Per Test - Low Cost Patient	ZMW 30.0	
Percent of Paying Low Cost Patients	50%	
Expected Future Revenue (monthly)	**ZMW 911,738.77**	
Growth Rate Monthly (Post Expansion)	1%	

UNC GLOBAL WOMEN'S HEALTH

Source: UTH/UNC Laboratory Financial Model Spreadsheet

GBP GLOBAL BUSINESS PROJECT

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UNC GLOBAL WOMEN'S HEALTH

Source: UTH/UNC Laboratory Financial Model Spreadsheet

GBP GLOBAL BUSINESS PROJECT

Equipment Depreciation: Estimate Break-down

SYSMEX XN-L 550	ROCHE Cobas C111 analyzer	Bechman FC500 Machine	Cobas Taqman 48	Equipment total only	Annual straight-line depreciation (over 5 years)	Monthly depreciation
$50,000.00	$47,000.00	$74,540.00	$205,000.00	$376,540.00	$75,308.00	$6,275.67
				Exchange Rate ZMW:US$	10	ZMW 62,756.67

Source: UNC Laboratory Equipment Budget

Pharmacy

Stock-outs and high retail margins are common throughout Sub-Saharan Africa

Fragmented Supply Chain

- **30% counterfeit rate** in some pharmaceutical categories
- Nigeria has **292 importers** and **724 distributors**

- Private, for-profit pharmacies charge **high prices** for reliable supply

- **67% median availability** of WHO essential medicines
- Medication **stock-outs of 46 days** a year were seen in government health facilities in Kenya

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: IFC Report; Manji et al., The Revolving Fund Pharmacy Model: backing up the Ministry of Health supply chain in western Kenya, *International Journal of Pharmacy Practice*, Jan 2016

The Revolving Fund Pharmacy model in Kenya compliments government stock-outs

- AMPATH (Academic Model Providing Access to Healthcare) in Kenya created the Revolving Fund Pharmacy to **improve medication access**
- The Kenyan MoH experiences a median WHO medication availability of 67%
- **RFP partners with the MoH and community** to fill gaps in medication supply through a more **reliable inventory**
- Because of their access to AMPATH storage and reliable supply through MEDS (Mission for Essential Drugs and Supplies) they are able to price drugs **much cheaper than private pharmacies**
- Their **average prescription price is half** of what patients would pay at a private pharmacy for out-of-stock medications

Key Contacts: Imran Manji, Pharmacist, Director of RFP in Kenya
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UNC GLOBAL WOMEN'S HEALTH

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Source: Interview with Dr. Manji

Revolving Fund Pharmacy (RFP) model will defray startup costs

Essential medications initially acquired through charitable donations

Generate revenue through sale and modest markup of medications

Use revenue to fund sustainable procurement and growth cycle

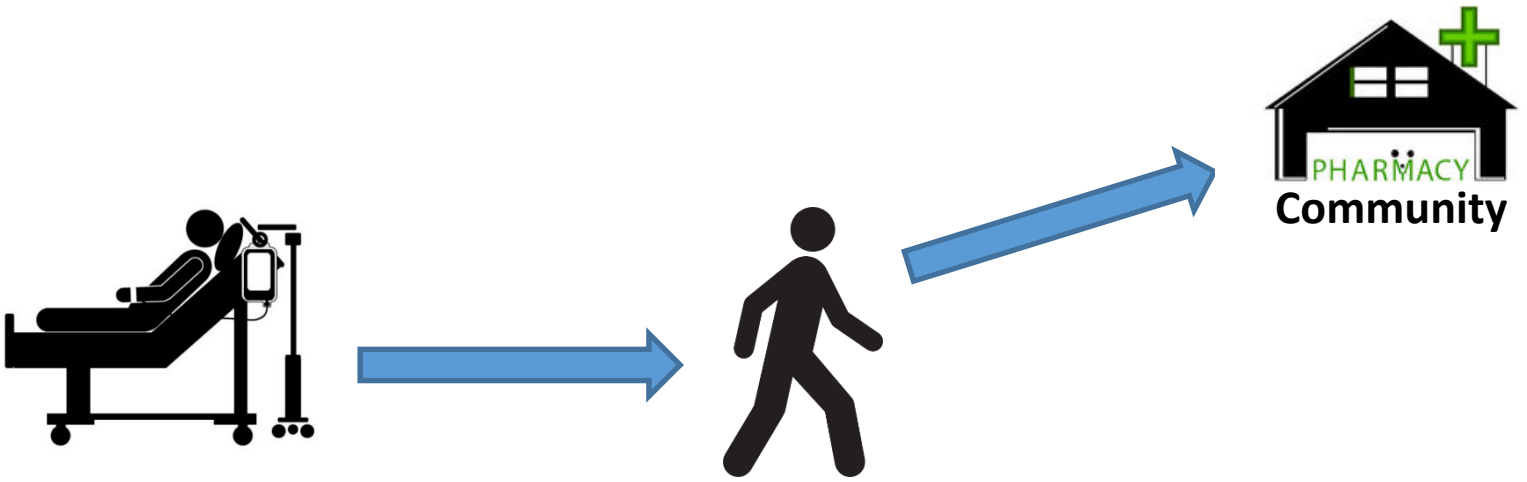
UNC-UTH training priority: Support travel and expenses for our new director of pharmacy to learn principles of RFP inventory management and prospects for charitable donations for start-up

UNC GLOBAL WOMEN'S HEALTH

Source: - Manji et al., The Revolving Fund Pharmacy Model: backing up the Ministry of Health supply chain in western Kenya, *International Journal of Pharmacy Practice*, Jan 2016
- http://ampath.pharmacy.pharmacy.purdue.edu, Purdue Kenya Partnership: Revolving Fund Pharmacies
- www.ampathkenya.org

GBP GLOBAL BUSINESS PROJECT

Traditional hospital retail pharmacies have low-prescription capture rates

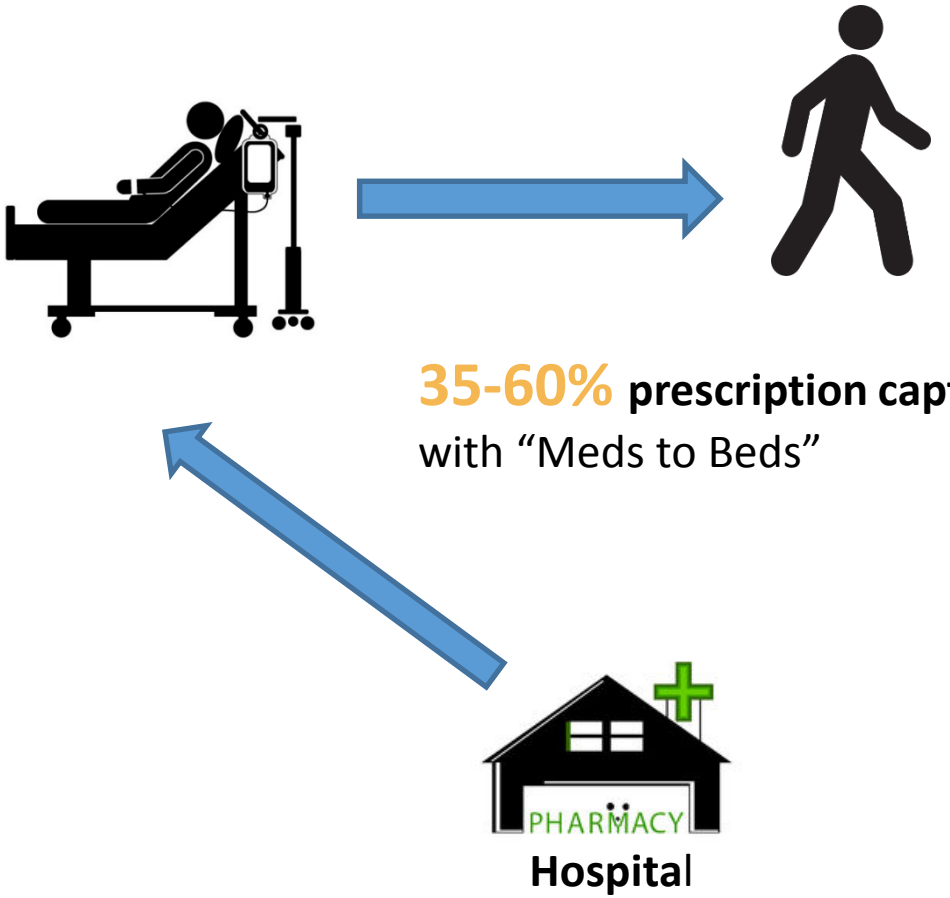


15-20% prescription capture with passive medication fill at discharge

Source: file:///C:/Users/riverdog/Downloads/0615_HFM_Burger.pdf

Meds to beds programs in the US can more than double prescription capture

- **Eligible** pre-discharge **patients identified**
- **Pharmtech** or pharmacy assistant **visits patient** at bedside
- **Patient indicates interest** in having discharge medications delivered
- Pharmtech enters patient into computer, **receives payment**, and **delivers medication**



35-60% prescription capture with "Meds to Beds"

Hospital

Source: - file:///C:/Users/riverdog/Downloads/0615_HFM_Burger.pdf
- http://ashpadvantage.com/leaders2013/docs/LC13%20Handout%20-%20Discharge%20-%20Cesarz-Tyler.pdf

Currently, prescription capture at UTH is much higher, but Ridgeway Pharmacy has monopoly on stocked-out medications

- Prescription capture rate at UTH is estimated to be >90%
- Most medications that are out-of-stock at UTH are filled at Ridgeway Pharmacy on campus
- Meds to Beds program will allow the Women's Center of Excellence to **quickly increase volume from other hospital departments** by being an earlier point of contact
- Meds to Beds liaisons will offer to fill medications from UTH pharmacy while s**upplementing out-of-stock medications** from our pharmacy
- **Appropriate billing** and **communications systems** will be critical to success.

UNC GLOBAL WOMEN'S HEALTH

Source: Interviews with UTH pharmacists

GBP GLOBAL BUSINESS PROJECT

Key capabilities to consider when hiring Meds to Beds liaisons

Communication

- Ability to effectively communicate with patients and families, pharmacists, nurses, and physicians

Customer Service

- Service recovery skills
- Charisma
- Ability to develop instant rapport with patients

Problem Solving

- Ability to prioritize workload effectively
- Ability to quickly analyze a situation and make rationale decisions under pressure

Technology

- Ability to use inpatient pharmacy, outpatient pharmacy, and fiscal software

Knowledge

- Previous pharmacy experience preferred
- Understanding of prescription insurance and medication assistance options

Behavior & Attitude

- Ability to handle stressful situations
- Autonomy and self-direction
- "Go-to" employees

Source: http://www.physicianleaders.org/docs/default-source/special-reports/capturing-new-sources-of-revenue-with-a-hospital-owned-outpatient-pharmacy.pdf

Pharmacy pro forma

Year	1	2	3	4	5
Sales	588,661	618,094	648,999	681,449	715,522
COGS	392,441	412,063	432,666	454,299	477,014
Gross Margin	196,220	206,031	216,333	227,150	238,507
Salaries	25,000	25,000	25,000	25,000	25,000
Overhead	17,660	18,543	19,470	20,443	21,466
Operating Income	**153,561**	**162,489**	**171,863**	**181,706**	**192,042**
Assumptions					
Prescriptions per day	464				
Avg. Price per script	$5				
Growth rate	5%				
Retail markup	50%				
Days	264				
Overhead/sales	3%				
# of employees	1				
Average salary	$25,000				

Pharmacy pro forma assumptions

- Prescription volume: Approximated using the UTH annual report for patient volume in OBGYN, internal medicine, and surgery. Current prescription volumes only include private practice patients and sale of medications that are out-of-stock at UTH at time of patient discharge
- Average medication price was approximated based on a sample price list for 29 primarily outpatient OBGYN prescriptions from LINK pharmacies in Lusaka. Based on interviews with local pharmacists, we estimate that LINK's average medication mark-up is likely close to 100%. Because of our decreased costs, we envision selling drugs at a 50% markup and used an average prescription price and COGS/Sales that reflect this assumption.
- Based on an average prescription number of 2-2.5 medications per patient in the US and interviews with Zambian pharmacists, we have estimated an average of 3 prescriptions per patient.
- We anticipate an explicit management contract that will allow for independent financial management of this pharmacy but will provide MoH staffing based on proof that 100% of operating income is pushed back into hospital operations.
- One pharmacist manager will be hired by UNC to oversee all pharmacy operations and the salary will come out of pharmacy revenue. We envision a salary of $25,000/yr which is a significant increase over the average pharmacy salary 0f $18,000/yr in Zambia. This additional salary will be necessary to recruit an individual with expertise and commitment to the success of this pharmacy.
- Please see excel document for further assumptions including prescription capture rate, medication stock-out rates, etc.
- Additional sources of revenue worth exploring that are not included in this pro-forma include:
  - Supply of inpatient medications to supplement UTH stock-outs
  - Front-end store that could add an additional 20% to revenue
  - High-cost patients giving preference to our pharmacy over UTH medications

Future expansion of retail pharmacy has the potential to provide significant additional revenue

- Currently many pharmacies are single-outlet businesses
- Some retail chains have been highly successful in branding quality and prestige
- **Quality and fidelity** of medications is a growing concern for Zambians
- Strategic partnerships with the Ministry of Health (MoH) will afford us a **competitive advantage in supply and staffing**
- **Expansions to private and public hospitals** that lack retail pharmacies should be a strategic priority in the **next 10 years**

Establishing a successful retail pharmacy will require both local and international expertise

Strategic Hires

- 1 **pharmacist with retail experience** and **inventory management** in Zambia who shares vision for UNC Women's Center of Excellence
- **~ 5 Meds to beds liaisons** to increase patient volume

UNC Eschelman School of Pharmacy

- Provide in-country and UNC-based **training** to key pharmacy **personnel** and develop training programs for:
  - ✓ Inventory management
  - ✓ Meds to Beds model
  - ✓ Medication substitutions
  - ✓ Chronic disease counseling services

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Private Practice

Using a PPP management model between UTH and physicians optimizes revenue and resource allocation

Solo Practitioner	PPP Management	Employed Physician
Doctors handle patient scheduling, staffing, accounting, and only pay rent to the hospital **Pro:** Doctors retain more income and will stay within hospital **Con:** UTH doesn't benefit financially and system is too privatized for a public hospital	Doctors handle patient scheduling and staffing while the PPP handles accounting and equipment **Pro:** Doctors and Women's Center still retain revenue and keep doctors on-site **Con:** Agreements with MoH and UTH must be approved	Hospital handles scheduling, staffing, accounting, and retains a large portion of revenue **Pro:** Provides more revenue for the hospital **Con:** Incentives may not be strong enough to keep doctors at UTH and the hospital's resources are strained

Source: Doctor and Nurse Interviews and Team Analysis

The new private practice model will help physicians balance their duties at UTH and their private patients

Sample schedule for a medical team at UTH:

Monday	Tuesday	Wednesday	Thursday	Friday
Lead OB/GYN ward rounds until 11:30 then participate in continuing medical education **See private patients in the afternoon**	Be on-call all day	Assist the upcoming on-call firm until 11:30am **See private patients in the afternoon**	Perform surgery in operating theater until 16:00 **See private patients after 16:00**	Work in OB/GYN clinic until 16:00 **One doctor from the firm will either see private or UTH patients in the morning, then physicians will switch**

Physicians will more efficiently generate sufficient personal revenue without compromising patient care

UNC GLOBAL WOMEN'S HEALTH

Source: Dr. Gertrude Tshuma, team analysis

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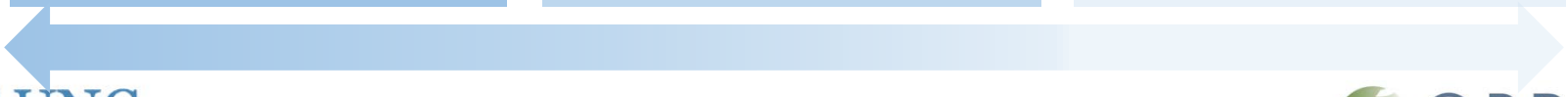
Using a hybrid management model between UTH and physicians optimizes revenue and resource allocation

Solo Practitioner	Hybrid Management	Employed Physician
Doctors handle patient scheduling, staffing, accounting, and only pay rent to the hospital. **Pro:** Doctors retain more income and will stay within hospital. **Con:** UTH doesn't benefit financially and system is too privatized for a public hospital.	Doctors handle patient scheduling and staffing while the hospital handles accounting and equipment. **Pro:** Doctors and hospital still retain revenue while spreading resources and keeping doctors at UTH. **Con:** Hospital must recoup cost to be sustainable.	Hospital handles patient scheduling, staffing, accounting, and retains a higher portion of revenue. **Pro:** Provides more revenue for the hospital. **Con:** Incentives may not be strong enough to keep doctors at UTH and the hospitals resources are strained.



UNC GLOBAL WOMEN'S HEALTH

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Source: Doctor and Nurse Interviews and Team Analysis

Theoretical capacity gain for private practice

Current private practice capacity

150 OB clinic patients x 20% private = 30 OB private patients x 5 days/week x 50 weeks/year = 7,500 visits

80 GYN clinic patients x 20% private = 16 GYN private patients x 5 days/week x 50 weeks/year = 4,000

= 11,500 visits/year

Future private practice capacity

~15 hours/week per physician

~3 patients/hour

~50 weeks/year

2,250 visits/physician/year
x 15 physicians

33,750 visits/year

Private practice revenue projection

Doctors in private practice	15	
Hours per doctor per week	15	
Patients per hour	3	
Weeks per year	50	
Visits per year	33,750	
Fee per visit	$30	
Total revenues	1,012,500	
70% to doctors et al.	708,750	
Net annual revenue	***$303,750***	
Expenses		
Salary	60,000	Administrator, secretary, billing clerk
Overhead	10,000	
Janitorial	20,000	
Reinvestment net revenue	***$213,750***	

Source: Team analysis

Appendix

Introduction to Zambia

UNC-UTH Collaboration

Project Specifications

Impact and Next Steps

UNC GLOBAL WOMEN'S HEALTH

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Once sufficient funds are procured, four steps are essential to begin operations at UTH

Quality improvement professionals will be hired to evaluate current operational performance and implement an effective management team and space design

Architectural and design engineers will help to optimally construct the new space

UNC and UTH will develop a public-private partnership with buy-in from the Ministry of Health to operate a non-profit entity with revenue generating services

New management will identify key staffing appropriately train current staff and new staff

UTH has a site facing the current maternity department with adequate space for the new women's hospital

Future site of UTH-UNC Women's Center of Excellence

Dimensions: 200ft x 280ft

Total area = 56,000ft^2

The space has been designated for this project by UTH staff

UNC GLOBAL WOMEN'S HEALTH

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Source: Team analysis

Space Requirements: **Obstetrics renovation (Imperial)**

- Obstetrics surgery
- Gynecological oncology and pelvic reconstruction surgery
- Imaging
- Laboratory and pharmacy
- Obstetrics and gynecology clinics
- Ancillary facilities
- Teaching facilities
- Summary
- Cost breakdown
- Utilization – patient throughput
- Bed count

Obstetrics surgery

1.0 Renovated Facilities - Obstetrics Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
1.01	Obstetrics Operating Theater	3	360	1,080	1.67	1,804	$1,000.00	$1,803,600
1.02	Hand Wash Stations	3	16	48	1.33	64	$150.00	$9,576
1.03	Pre-Operative Holding	20	64	1,280	2.00	2,560	$250.00	$640,000
1.04	Post-Operative Care	20	64	1,280	2.00	2,560	$350.00	$896,000
1.05	Male Dressing/Shower/Locker	1	200	200	1.50	300	$200.00	$60,000
1.06	Female Dressing/Shower/Locker	1	400	400	1.50	600	$200.00	$120,000
1.07	Anesthesia Workroom	1	128	128	1.50	192	$230.00	$44,160
1.08	Sterile Storage	1	256	256	1.50	384	$150.00	$57,600
1.09	Medical Supply Storage	1	256	256	1.50	384	$150.00	$57,600
1.10	Equipment Storage	1	160	160	1.50	240	$100.00	$24,000
1.11	Clean Linen Storage	1	144	144	1.50	216	$100.00	$21,600
1.12	Soiled Linen Storage	1	144	144	1.50	216	$100.00	$21,600
1.13	Medical Records	1	144	144	1.50	216	$120.00	$25,920
1.14	Standard Patients Obstetrics Ward Beds	60	36	2,160	2.00	4,320	$150.00	$648,000
1.15	Standard Patient Nurses Stations	3	288	864	1.67	1,443	$200.00	$288,576
1.16	Standard Patient Linen & General Storage Rooms	6	144	864	1.67	1,443	$100.00	$144,288
1.17	Standard Patient Offices and Conference Rooms	6	144	864	1.67	1,443	$120.00	$173,146
1.18	Premium Patients Obstetrics Ward Beds	40	64	2,560	2.00	5,120	$150.00	$768,000
1.19	Premium Patient Nurses Stations	2	288	576	1.67	962	$200.00	$192,384
1.20	Premium Patient Linen & General Storage	4	144	576	1.67	962	$100.00	$96,192
1.21	Premium Patient Offices and Conference Rooms	4	144	576	1.67	962	$120.00	$115,430
1.22	Private Single-Occupancy Rooms with Toilets	4	150	600	2.00	1,200	$180.00	$216,000
1.23	Labor and Delivery Ward Beds	80	36	2,880	2.00	5,760	$150.00	$864,000
1.24	Labor and Delivery Nurses Stations	4	288	1,152	1.67	1,924	$200.00	$384,768
1.25	Labor and Delivery Linen and General Storage	4	144	576	1.67	962	$100.00	$96,192
1.26	Labor and Delivery Offices and Conference Rooms	4	144	576	1.67	962	$120.00	$115,430
1.27	High-Risk Infant Care Unit Beds	20	68	1,360	2.00	2,720	$200.00	$544,000
1.28	High-Risk Infant Care Nurses Station	1	288	288	1.67	481	$200.00	$96,192
1.29	High-Risk Reception/Triage/Holding	1	144	144	1.67	240	$120.00	$28,858
1.30	High Risk Family Waiting and Viewing	1	144	144	1.67	240	$120.00	$28,858
1.31	High-Risk Infant Care Linen & General Storage	2	144	288	1.67	481	$100.00	$48,096
1.32	High-Risk Infant Care Office and Conference	2	144	288	1.67	481	$120.00	$57,715
1.33	Male Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$200.00	$133,600
1.34	Female Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$200.00	$133,600
1.35	Call Rooms	2	120	240	2.00	480	$180.00	$86,400
1.36	Offices	2	80	160	1.50	240	$120.00	$28,800
1.37	Toilets	7	225	1,575	1.50	2,363	$200.00	$472,500
1.38	Patient Baths	10	50	500	2.00	1,000	$200.00	$200,000
1.39	Mechanical Room (w/ chiller(s) and AHU(s))	1	400	400	1.33	532	$400.00	$212,800
1.40	Electrical Room (w/ SG, ATS and UPS)	1	144	144	1.33	192	$500.00	$95,760
1.41	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				26,675	1.80	47,983	$212.81	$10,211,241

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Gynecological oncology and pelvic reconstruction surgery

2.0 New Faculties - Gynecologic Oncology and Pelvic Reconstruction Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
2.01	Gynecology Operating Theaters	4	360	1,440	1.67	2,405	$1,400.00	$3,366,720
2.02	Hand Wash Stations	4	16	64	1.33	85	$150.00	$12,768
2.03	Pre-Operative Holding	12	64	768	1.67	1,283	$300.00	$384,768
2.04	Post-Operative Care	24	64	1,536	1.67	2,565	$400.00	$1,026,048
2.05	Male Dressing/Shower/Locker	1	240	240	1.50	360	$240.00	$86,400
2.06	Female Dressing/Shower/Locker	1	400	400	1.50	600	$240.00	$144,000
2.07	Anesthesia Workroom	1	128	128	1.50	192	$275.00	$52,800
2.08	Sterile Storage	1	256	256	1.50	384	$180.00	$69,120
2.09	Medical Supply Storage	1	240	240	1.50	360	$180.00	$64,800
2.10	Equipment Storage	1	160	160	1.50	240	$120.00	$28,800
2.11	Clean Linen Storage	1	144	144	1.50	216	$120.00	$25,920
2.12	Soiled Linen Storage	1	144	144	1.50	216	$120.00	$25,920
2.13	Medical Records	1	144	144	1.50	216	$150.00	$32,400
2.14	Emergency Intake Ward Beds	25	36	900	2.00	1,800	$200.00	$360,000
2.15	Emergency Intake Nurses Stations	1	288	288	1.67	481	$240.00	$115,430
2.16	Emergency Intake Linen and General Storage	2	144	288	1.67	481	$120.00	$57,715
2.17	Emergency Intake Offices and Conference Rooms	2	144	288	1.67	481	$150.00	$72,144
2.18	Standard Patients Ward Beds	160	36	5,760	2.00	11,520	$200.00	$2,304,000
2.19	Standard Patient Nurses Station	8	288	2,304	1.67	3,848	$240.00	$923,443
2.20	Standard Patient Linen & General Storage	16	144	2,304	1.67	3,848	$120.00	$461,722
2.21	Standard Patient Office and Conference	16	144	2,304	1.67	3,848	$150.00	$577,152
2.22	Premium Patients Ward Beds	90	64	5,760	2.00	11,520	$200.00	$2,304,000
2.23	Premium Patient Nurses Station	3	288	864	1.67	1,443	$240.00	$346,291
2.24	Premium Patient Linen & General Storage	6	144	864	1.67	1,443	$120.00	$173,146
2.25	Premium Patient Office and Conference	6	144	864	1.67	1,443	$150.00	$216,432
2.26	Private Single-Occupancy Rooms with Toilets	8	150	1,200	2.00	2,400	$240.00	$576,000
2.27	Male Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$240.00	$160,320
2.28	Female Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$240.00	$160,320
2.29	Call Rooms	2	120	240	2.00	480	$200.00	$96,000
2.30	Offices	2	80	160	1.50	240	$150.00	$36,000
2.31	Reception/Triage/Holding	1	240	240	1.50	360	$180.00	$64,800
2.32	Family Waiting	1	300	300	1.50	450	$150.00	$67,500
2.33	Toilets	10	225	2,250	1.50	3,375	$250.00	$843,750
2.34	Patient Baths	14	50	688	2.00	1,375	$250.00	$343,750
2.35	Enclosed, Elevated Connector with 1.0	1	4,000	4,000	1.00	4,000	$120.00	$480,000
2.36	Mechanical Room (w/ chiller(s) and AHU(s))	1	400	400	1.33	532	$500.00	$266,000
2.37	Electrical Room (w/ SG, ATS and UPS)	1	144	144	1.33	192	$750.00	$143,640
2.38	750 kVA Diesel Generator	1	0	0	0.00	0		$160,000
				38,874	1.70	66,016	$251.91	$16,630,019

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Imaging

3.0 New Facilities - Imaging

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
3.01	Computerized Tomography (CT) Scan Room	2	500	1,000	1.67	1,670	$450.00	$751,500
3.02	CAT Scanner Equipment	2	0	0	0.00	0	$-	$300,000
3.03	CAT Scan Station	1	144	144	1.67	240	$300.00	$72,144
3.04	Magnetic Resonance Imaging (MRI) Room	1	500	500	1.67	835	$450.00	$375,750
3.05	MRI Equipment	1	0	0	0.00	0	$-	$300,000
3.06	MRI Scan Station	1	144	144	1.67	240	$300.00	$72,144
3.07	Positron Emission Tomography (PET) Room	1	500	500	1.67	835	$450.00	$375,750
3.08	PET Equipment	1	0	0	0.00	0	$-	$500,000
3.09	PET Scan Station	1	144	144	1.67	240	$300.00	$72,144
3.10	Chest X-Ray Room	1	144	144	1.67	240	$350.00	$84,168
3.11	X-Ray Equipment	1	0	0	0.00	0	$-	$125,000
3.12	X-Ray Station	1	64	64	1.67	107	$275.00	$29,392
3.13	Medical Records	1	144	144	1.50	216	$150.00	$32,400
3.14	Offices	2	80	160	1.50	240	$150.00	$36,000
3.15	Reception/Waiting	1	256	256	1.50	384	$180.00	$69,120
3.16	Toilets	2	225	450	1.50	675	$250.00	$168,750
3.17	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
3.18	Electrical Room (w/ SG, ATS and UPS)	1	144	144	1.33	192	$750.00	$143,640
3.19	750 kVA Diesel Generator	1	0	0	0.00	0		$160,000
				4,154	1.59	6,594	$592.54	$3,907,302

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Laboratory and pharmacy

4.0 New Facilities - Laboratory and Pharmacy

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
4.01	Medical Laboratory	1	768	768	2.00	1,536	$350.00	$537,600
4.02	Pathology Laboratory	1	576	576	2.00	1,152	$350.00	$403,200
4.03	Venipuncture and Sample Collection	2	64	128	1.67	214	$180.00	$38,477
4.04	Frozen Section Laboratory	1	256	256	2.00	512	$350.00	$179,200
4.05	Medical Records	1	144	144	1.50	216	$150.00	$32,400
4.06	Laboratory Office	1	80	80	1.50	120	$150.00	$18,000
4.07	Reception/Waiting	1	144	144	1.50	216	$150.00	$32,400
4.08	Toilets	2	64	128	1.50	192	$250.00	$48,000
4.09	Pharmacy	1	1,152	1,152	2.00	2,304	$350.00	$806,400
4.10	Pharmacy Controlled Storage	1	64	64	1.67	107	$500.00	$53,440
4.11	Pharmacy Receiving	1	128	128	1.67	214	$150.00	$32,064
4.12	Pharmacy Office	1	144	144	1.50	216	$150.00	$32,400
4.13	Pharmacy Patient Waiting and Dispensing	1	192	192	1.67	321	$150.00	$48,096
4.14	Pharmacy Hospital Dispensing	1	288	288	1.50	432	$150.00	$64,800
4.15	OBGYN Blood Bank	1	64	64	1.67	107	$250.00	$26,720
4.16	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
4.17	Electrical Room (w/ SB)	1	144	144	1.33	192	$500.00	$95,760
				4,760	1.79	8,528	$315.23	$2,688,357

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Obstetrics and gynecology clinics

5.0 New Facilities - Obstetrics and Gynecology (OBGYN) Clinics

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
5.01	Provider Offices	15	100	1,500	1.50	2,250	$120.00	$270,000
5.02	Practice Manager's Office	1	100	100	1.50	150	$120.00	$18,000
5.03	Obstetrics Nurse's Offices	3	100	300	1.50	450	$120.00	$54,000
5.04	Exam Rooms (2 per Provider)	30	100	3,000	2.00	6,000	$200.00	$1,200,000
5.05	Nurses Stations	4	160	640	1.67	1,069	$240.00	$256,512
5.06	Procedure Rooms	5	160	800	2.00	1,600	$240.00	$384,000
5.07	Fetal Monitor Room	3	160	480	1.67	802	$240.00	$192,384
5.08	Ultrasound Room	3	160	480	2.00	960	$240.00	$230,400
5.09	Ultrasound Equipment	3	0	0	0.00	0	$-	$135,000
5.10	Family Planning Consultation Rooms	4	100	400	1.67	668	$150.00	$135,000
5.11	Family Planning Waiting Room	1	144	144	1.67	240	$150.00	$135,000
5.12	Counseling Room	1	100	100	1.67	167	$150.00	$135,000
5.13	Medical Laboratory	1	256	256	1.67	428	$240.00	$102,605
5.14	Venipuncture and Sample Collection	1	576	576	1.67	962	$180.00	$173,146
5.15	Medical Records	1	192	192	1.50	288	$150.00	$43,200
5.16	Reception/Waiting	2	576	1,152	1.50	1,728	$180.00	$311,040
5.17	Toilets	4	240	960	1.50	1,440	$250.00	$360,000
5.18	Employee Lounge	1	360	360	1.50	540	$150.00	$81,000
5.19	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
5.20	Electrical Room (w/ SB)	1	144	144	1.33	192	$500.00	$95,760
				11,944	1.71	20,412	$222.98	$4,551,446

UNC GLOBAL WOMEN'S HEALTH

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

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Ancillary facilities

6.0 New Facilities - Ancillary Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
6.01	CSS Central Sterilization with 2 Autoclaves	1	192	192	2.00	384	$800.00	$307,200
6.02	CSS Processing	1	288	288	2.00	576	$300.00	$172,800
6.03	CSS Storage and Distribution	1	576	576	2.00	1,152	$300.00	$345,600
6.04	Food Preparation Area	1	384	384	1.50	576	$300.00	$172,800
6.05	Food Cooking Area	1	576	576	1.50	864	$450.00	$388,800
6.06	Bulk Dry Storage	1	144	144	1.33	192	$180.00	$34,474
6.07	Bulk Refrigerated Storage	1	144	144	1.33	192	$300.00	$57,456
6.08	Bulk Freezer Storage	1	120	120	1.33	160	$350.00	$55,860
6.09	Day Stores	1	64	64	1.50	96	$180.00	$17,280
6.10	Tray Preparation Area	1	384	384	1.50	576	$300.00	$172,800
6.11	Food Cart Storage	1	192	192	1.33	255	$180.00	$45,965
6.12	Staff and Visitor Serving	1	829	829	1.50	1,244	$300.00	$373,200
6.13	Staff and Visitor Dining	50	20	1,000	1.33	1,330	$150.00	$199,500
6.14	Chef's Office	1	96	96	1.50	144	$150.00	$21,600
6.15	Scullery	1	48	48	1.50	72	$250.00	$18,000
6.16	Dishwashing Area	1	128	128	1.50	192	$300.00	$57,600
6.17	Dish Storage	1	144	144	1.33	192	$180.00	$34,474
6.18	Food Service Receiving/Trash/Can Wash	1	192	192	1.50	288	$150.00	$43,200
6.19	Laundry Washing Area	1	400	400	1.50	600	$350.00	$210,000
6.20	Laundry Drying Area	1	400	400	1.50	600	$300.00	$180,000
6.21	Folding Area	1	400	400	1.50	600	$180.00	$108,000
6.22	Detergent Storage	1	24	24	1.33	32	$150.00	$4,788
6.23	Soiled Linen Staging	1	144	144	1.50	216	$150.00	$32,400
6.24	Clean Linen Storage	1	144	144	1.50	216	$180.00	$38,880
6.25	Retail Laundry	1	360	360	1.50	540	$240.00	$129,600
6.26	General Maintenance Shop	1	576	576	1.50	864	$150.00	$129,600
6.27	Metal Maintenance Shop	1	576	576	1.50	864	$150.00	$129,600
6.28	Equipment Maintenance Shop	1	864	864	1.50	1,296	$200.00	$259,200
6.29	Toilets	4	240	960	1.50	1,440	$250.00	$360,000
6.30	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
6.31	Electrical Room (w/ SB)	1	144	144	1.33	192	$500.00	$95,760
				10,853	1.51	16,422	$270.12	$4,435,836

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Teaching facilities

7.0 New Facilities - Teaching Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
7.01	Auditorium (70 seats)	70	25	1,750	1.67	2,923	$240.00	$701,400
7.02	Lobby and Refunction Space (70 Capacity)	70	20	1,400	1.67	2,338	$180.00	$420,840
7.03	Tutorial Rooms (3 @ 30 Capacity)	90	25	2,250	2.00	4,500	$200.00	$900,000
7.04	Demonstration Rooms (2 @ 24 Capacity)	48	50	2,400	2.00	4,800	$250.00	$1,200,000
7.05	Faculty Offices	10	100	1,000	1.67	1,670	$150.00	$250,500
7.06	Board Room (20 Capacity + Overflow)	20	35	700	1.67	1,169	$180.00	$210,420
7.07	Board Room Pre-Function (30 Capacity)	30	15	450	1.67	752	$180.00	$135,270
7.08	Chemistry Research Lab (1 Lab Module)	1	300	300	2.00	600	$350.00	$210,000
7.09	Biology Research Lab (1 Lab Module)	1	300	300	2.00	600	$250.00	$150,000
7.10	Lab Prep and Chemical Storage	1	240	240	2.00	480	$200.00	$96,000
7.11	Toilets	2	240	480	1.50	720	$250.00	$180,000
7.12	Mechanical Room with AHU	1	144	144	1.33	192	$200.00	$38,304
7.13	Electrical Room	1	96	96	1.33	128	$200.00	$25,536
				11,510	1.81	20,870	$216.49	$4,518,270

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Summary of space requirements

Summary

Area Number	Area Name	Area (GSF)	Estimated Construction Cost (USD)	Estimated Unscheduled FF&E Costs (USD)	Estimated Fees and Soft Costs (USD) @ 20%	Sub-Total Costs (USD)	Contingency (USD) @ 30%	Estimated Construction Budget (USD)
1.0	Obstetrics Surgery	47,983	$10,211,241	$2,750,000	$2,592,248	$15,553,489	$4,666,047	$20,219,536
2.0	Gynecologic Oncology & Pelvic Reconstruction Surgery	66,016	$16,630,019	$3,750,000	$4,076,004	$24,456,023	$7,336,807	$31,792,830
3.0	Imaging	6,594	$3,907,302	$230,794	$827,619	$4,965,715	$1,489,715	$6,455,430
4.0	Laboratory and Pharmacy	8,528	$2,688,357	$852,824	$708,236	$4,249,417	$1,274,825	$5,524,242
5.0	Obstetrics and Gynecology Clinics	20,412	$4,551,446	$1,074,407	$1,125,171	$6,751,025	$2,025,307	$8,776,332
6.0	Ancillary Facilities	16,422	$4,435,836	$2,463,264	$1,379,820	$8,278,920	$2,483,676	$10,762,596
7.0	Teaching Facilities	20,870	$4,518,270	$1,043,510	$1,112,356	$6,674,136	$2,002,241	$8,676,377
		186,825	$46,942,471	$12,164,800	$11,821,454	$70,928,725	$21,278,617	$92,207,342

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Cost breakdown

Breakdown

Area of Cost	Total Estimated Cost (USD)	Estimated Cost per Square Foot (USD)
Construction	$45,102,471	$241.42
Equipment and FF&E	$14,004,800	$74.96
Fees and Soft Costs	$11,821,454	$63.28
Contingency	$21,278,617	$113.90
	$92,207,342	$493.55

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Utilization – patient throughput

Utilization - Patient Throughput

Area	Utilization Function	Number	Unit	Total/Day	Total/Year
1.01	OB Surgeries/Day (2/hour/OT x 8 Hr/Day) + Emergencies	16	per OT	32	11,680
2.01	GYN Surgeries/Day (2/day/OT) + Emergencies	2	per OT	6	1,500
3.02	CAT Scans/Day (2/hour/CT x 8Hr/Day)	16	per CT	32	8,000
3.05	MRI Scans/Day (1/hour/MRI x 8 Hr/Day)	8	per MRI	8	2,000
3.08	PET Scans/Day (1/hour/PET x 8 Hr/Day)	8	per PET	8	2,000
3.11	X-Rays/Day (4/hour/X-Ray x 8 Hr/Day)	32	per X-Ray	32	8,000
5.01	Clinic Visits (3/hour/Provider x 8 Hr/Day)	24	per Provider	360	90,000
5.09	Fetal Ultrasounds (3/hour/Machine x 8 Hr/Day)	24	per Machine	72	18,000
5.10	Family Planning Visits (1/hour/room x 8 Hr/Day	8	per Room	32	8,000
1.14	OB Ward Patient Beds (3 Days/Patient)	104	Beds		12,653
1.23	OB Labor and Delivery Beds (1 Day/Patient)	80	Beds		29,200
2.14	GYN Emergency Intake Beds (2 Days/Patient)	25	Beds		4,563
2.18	GYN Ward Patient Beds (5 Days/Patient)	258	Beds		18,834

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Bed count

Bed Count	
Hospital Area	Beds
OB Pre-Op	20
OB Post-Op	20
OB Standard Patients	60
OB Premium Patients	40
OB Private Patients	4
OB Labor and Delivery	80
OB High-Risk Infants	20
Sub-Total OB Beds	**244**
GYN Pre-Op	12
GYN Post-Op	24
GYN Emergency	25
GYN Standard Patients	160
GYN Premium Patients	90
GYN Private Patients	8
Sub-Total GYN Beds	**319**
Total Beds	**563**

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Space requirements: **All new construction (Imperial)**

- Obstetrics surgery
- Gynecological oncology and pelvic reconstruction surgery
- Imaging
- Laboratory and pharmacy
- Obstetrics and gynecology clinics
- Ancillary facilities
- Teaching facilities
- Summary
- Cost breakdown
- Utilization – patient throughput
- Bed count

Obstetrics surgery

1.0 New Facilities - Obstetrics Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
1.01	Obstetrics Operating Theater	3	360	1,080	1.67	1,804	$1,400.00	$2,525,040
1.02	Hand Wash Stations	3	16	48	1.33	64	$200.00	$12,768
1.03	Pre-Operative Holding	20	64	1,280	2.00	2,560	$300.00	$768,000
1.04	Post-Operative Care	20	64	1,280	2.00	2,560	$400.00	$1,024,000
1.05	Male Dressing/Shower/Locker	1	200	200	1.50	300	$240.00	$72,000
1.06	Female Dressing/Shower/Locker	1	400	400	1.50	600	$240.00	$144,000
1.07	Anesthesia Workroom	1	128	128	1.50	192	$275.00	$52,800
1.08	Sterile Storage	1	256	256	1.50	384	$180.00	$69,120
1.09	Medical Supply Storage	1	256	256	1.50	384	$180.00	$69,120
1.10	Equipment Storage	1	160	160	1.50	240	$120.00	$28,800
1.11	Clean Linen Storage	1	144	144	1.50	216	$120.00	$25,920
1.12	Soiled Linen Storage	1	144	144	1.50	216	$120.00	$25,920
1.13	Medical Records	1	144	144	1.50	216	$150.00	$32,400
1.14	Standard Patients Obstetrics Ward Beds	60	36	2,160	2.00	4,320	$200.00	$864,000
1.15	Standard Patient Nurses Stations	3	288	864	1.67	1,443	$240.00	$346,291
1.16	Standard Patient Linen & General Storage Rooms	6	144	864	1.67	1,443	$120.00	$173,146
1.17	Standard Patient Offices and Conference Rooms	6	144	864	1.67	1,443	$150.00	$216,432
1.18	Premium Patients Obstetrics Ward Beds	40	64	2,560	2.00	5,120	$200.00	$1,024,000
1.19	Premium Patient Nurses Stations	2	288	576	1.67	962	$240.00	$230,861
1.20	Premium Patient Linen & General Storage	4	144	576	1.67	962	$120.00	$115,430
1.21	Premium Patient Offices and Conference Rooms	4	144	576	1.67	962	$150.00	$144,288
1.22	Private Single-Occupancy Rooms with Toilets	4	150	600	2.00	1,200	$200.00	$240,000
1.23	Labor and Delivery Ward Beds	80	36	2,880	2.00	5,760	$200.00	$1,152,000
1.24	Labor and Delivery Nurses Stations	4	288	1,152	1.67	1,924	$240.00	$461,722
1.25	Labor and Delivery Linen and General Storage	4	144	576	1.67	962	$120.00	$115,430
1.26	Labor and Delivery Offices and Conference Rooms	4	144	576	1.67	962	$150.00	$144,288
1.27	High-Risk Infant Care Unit	20	68	1,360	2.00	2,720	$240.00	$652,800
1.28	High-Risk Infant Care Nurses Station	1	288	288	1.67	481	$240.00	$115,430
1.29	High-Risk Reception/Triage/Holding	1	144	144	1.67	240	$150.00	$36,072
1.30	High Risk Family Waiting and Viewing	1	144	144	1.67	240	$150.00	$36,072
1.31	High-Risk Infant Care Linen & General Storage	2	144	288	1.67	481	$120.00	$57,715
1.32	High-Risk Infant Care Office and Conference	2	144	288	1.67	481	$150.00	$72,144
1.33	Male Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$240.00	$160,320
1.34	Female Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$240.00	$160,320
1.35	Call Rooms	2	120	240	2.00	480	$200.00	$96,000
1.36	Offices	2	80	160	1.50	240	$150.00	$36,000
1.37	Toilets	7	225	1,575	1.50	2,363	$250.00	$590,625
1.38	Patient Baths	10	50	500	2.00	1,000	$250.00	$250,000
1.39	Mechanical Room (w/ chiller(s) and AHU(s))	1	400	400	1.33	532	$500.00	$266,000
1.40	Electrical Room (w/ SG, ATS and UPS)	1	144	144	1.33	192	$750.00	$143,640
1.41	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				26,675	1.80	47,983	$269.07	$12,910,915

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Gynecological oncology and pelvic reconstruction surgery

2.0 New Faculties - Gynecologic Oncology and Pelvic Reconstruction Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
2.01	Gynecology Operating Theaters	4	360	1,440	1.67	2,405	$1,400.00	$3,366,720
2.02	Hand Wash Stations	4	16	64	1.33	85	$150.00	$12,768
2.03	Pre-Operative Holding	12	64	768	1.67	1,283	$300.00	$384,768
2.04	Post-Operative Care	24	64	1,536	1.67	2,565	$400.00	$1,026,048
2.05	Male Dressing/Shower/Locker	1	240	240	1.50	360	$240.00	$86,400
2.06	Female Dressing/Shower/Locker	1	400	400	1.50	600	$240.00	$144,000
2.07	Anesthesia Workroom	1	128	128	1.50	192	$275.00	$52,800
2.08	Sterile Storage	1	256	256	1.50	384	$180.00	$69,120
2.09	Medical Supply Storage	1	240	240	1.50	360	$180.00	$64,800
2.10	Equipment Storage	1	160	160	1.50	240	$120.00	$28,800
2.11	Clean Linen Storage	1	144	144	1.50	216	$120.00	$25,920
2.12	Soiled Linen Storage	1	144	144	1.50	216	$120.00	$25,920
2.13	Medical Records	1	144	144	1.50	216	$150.00	$32,400
2.14	Emergency Intake Ward Beds	25	36	900	2.00	1,800	$200.00	$360,000
2.15	Emergency Intake Nurses Stations	1	288	288	1.67	481	$240.00	$115,430
2.16	Emergency Intake Linen and General Storage	2	144	288	1.67	481	$120.00	$57,715
2.17	Emergency Intake Offices and Conference Rooms	2	144	288	1.67	481	$150.00	$72,144
2.18	Standard Patients Ward Beds	160	36	5,760	2.00	11,520	$200.00	$2,304,000
2.19	Standard Patient Nurses Station	8	288	2,304	1.67	3,848	$240.00	$923,443
2.20	Standard Patient Linen & General Storage	16	144	2,304	1.67	3,848	$120.00	$461,722
2.21	Standard Patient Office and Conference	16	144	2,304	1.67	3,848	$150.00	$577,152
2.22	Premium Patients Ward Beds	90	64	5,760	2.00	11,520	$200.00	$2,304,000
2.23	Premium Patient Nurses Station	3	288	864	1.67	1,443	$240.00	$346,291
2.24	Premium Patient Linen & General Storage	6	144	864	1.67	1,443	$120.00	$173,146
2.25	Premium Patient Office and Conference	6	144	864	1.67	1,443	$150.00	$216,432
2.26	Private Single-Occupancy Rooms with Toilets	8	150	1,200	2.00	2,400	$240.00	$576,000
2.27	Male Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$240.00	$160,320
2.28	Female Nurse Dressing/Shower/Locker	1	400	400	1.67	668	$240.00	$160,320
2.29	Call Rooms	2	120	240	2.00	480	$200.00	$96,000
2.30	Offices	2	80	160	1.50	240	$150.00	$36,000
2.31	Reception/Triage/Holding	1	240	240	1.50	360	$180.00	$64,800
2.32	Family Waiting	1	300	300	1.50	450	$150.00	$67,500
2.33	Toilets	10	225	2,250	1.50	3,375	$250.00	$843,750
2.34	Patient Baths	14	50	688	2.00	1,375	$250.00	$343,750
2.35	Enclosed, Elevated Connector with 1.0	1	4,000	4,000	1.00	4,000	$120.00	$480,000
2.36	Mechanical Room (w/ chiller(s) and AHU(s))	1	400	400	1.33	532	$500.00	$266,000
2.37	Electrical Room (w/ SG, ATS and UPS)	1	144	144	1.33	192	$750.00	$143,640
2.38	750 kVA Diesel Generator	1	0	0	0.00	0		$160,000
				38,874	1.70	66,016	$251.91	$16,630,019

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Imaging

3.0 New Facilities - Imaging

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
3.01	Computerized Tomography (CT) Scan Room	2	500	1,000	1.67	1,670	$450.00	$751,500
3.02	CAT Scanner Equipment	2	0	0	0.00	0	$-	$300,000
3.03	CAT Scan Station	1	144	144	1.67	240	$300.00	$72,144
3.04	Magnetic Resonance Imaging (MRI) Room	1	500	500	1.67	835	$450.00	$375,750
3.05	MRI Equipment	1	0	0	0.00	0	$-	$300,000
3.06	MRI Scan Station	1	144	144	1.67	240	$300.00	$72,144
3.07	Positron Emission Tomography (PET) Room	1	500	500	1.67	835	$450.00	$375,750
3.08	PET Equipment	1	0	0	0.00	0	$-	$500,000
3.09	PET Scan Station	1	144	144	1.67	240	$300.00	$72,144
3.10	Chest X-Ray Room	1	144	144	1.67	240	$350.00	$84,168
3.11	X-Ray Equipment	1	0	0	0.00	0	$-	$125,000
3.12	X-Ray Station	1	64	64	1.67	107	$275.00	$29,392
3.13	Medical Records	1	144	144	1.50	216	$150.00	$32,400
3.14	Offices	2	80	160	1.50	240	$150.00	$36,000
3.15	Reception/Waiting	1	256	256	1.50	384	$180.00	$69,120
3.16	Toilets	2	225	450	1.50	675	$250.00	$168,750
3.17	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
3.18	Electrical Room (w/ SG, ATS and UPS)	1	144	144	1.33	192	$750.00	$143,640
3.19	750 kVA Diesel Generator	1	0	0	0.00	0		$160,000
				4,154	1.59	6,594	$592.54	$3,907,302

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Laboratory and pharmacy

4.0 New Facilities - Laboratory and Pharmacy

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
4.01	Medical Laboratory	1	768	768	2.00	1,536	$350.00	$537,600
4.02	Pathology Laboratory	1	576	576	2.00	1,152	$350.00	$403,200
4.03	Venipuncture and Sample Collection	2	64	128	1.67	214	$180.00	$38,477
4.04	Frozen Section Laboratory	1	256	256	2.00	512	$350.00	$179,200
4.05	Medical Records	1	144	144	1.50	216	$150.00	$32,400
4.06	Laboratory Office	1	80	80	1.50	120	$150.00	$18,000
4.07	Reception/Waiting	1	144	144	1.50	216	$150.00	$32,400
4.08	Toilets	2	64	128	1.50	192	$250.00	$48,000
4.09	Pharmacy	1	1,152	1,152	2.00	2,304	$350.00	$806,400
4.10	Pharmacy Controlled Storage	1	64	64	1.67	107	$500.00	$53,440
4.11	Pharmacy Receiving	1	128	128	1.67	214	$150.00	$32,064
4.12	Pharmacy Office	1	144	144	1.50	216	$150.00	$32,400
4.13	Pharmacy Patient Waiting and Dispensing	1	192	192	1.67	321	$150.00	$48,096
4.14	Pharmacy Hospital Dispensing	1	288	288	1.50	432	$150.00	$64,800
4.15	OBGYN Blood Bank	1	64	64	1.67	107	$250.00	$26,720
4.16	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
4.17	Electrical Room (w/ SB)	1	144	144	1.33	192	$500.00	$95,760
				4,760	1.79	8,528	$315.23	$2,688,357

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Obstetrics and gynecology clinics

5.0 New Facilities - Obstetrics and Gynecology (OBGYN) Clinics

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
5.01	Provider Offices	15	100	1,500	1.50	2,250	$120.00	$270,000
5.02	Practice Manager's Office	1	100	100	1.50	150	$120.00	$18,000
5.03	Obstetrics Nurse's Offices	3	100	300	1.50	450	$120.00	$54,000
5.04	Exam Rooms (2 per Provider)	30	100	3,000	2.00	6,000	$200.00	$1,200,000
5.05	Nurses Stations	4	160	640	1.67	1,069	$240.00	$256,512
5.06	Procedure Rooms	5	160	800	2.00	1,600	$240.00	$384,000
5.07	Fetal Monitor Room	3	160	480	1.67	802	$240.00	$192,384
5.08	Ultrasound Room	3	160	480	2.00	960	$240.00	$230,400
5.09	Ultrasound Equipment	3	0	0	0.00	0	$-	$135,000
5.10	Family Planning Consultation Rooms	4	100	400	1.67	668	$150.00	$135,000
5.11	Family Planning Waiting Room	1	144	144	1.67	240	$150.00	$135,000
5.12	Counseling Room	1	100	100	1.67	167	$150.00	$135,000
5.13	Medical Laboratory	1	256	256	1.67	428	$240.00	$102,605
5.14	Venipuncture and Sample Collection	1	576	576	1.67	962	$180.00	$173,146
5.15	Medical Records	1	192	192	1.50	288	$150.00	$43,200
5.16	Reception/Waiting	2	576	1,152	1.50	1,728	$180.00	$311,040
5.17	Toilets	4	240	960	1.50	1,440	$250.00	$360,000
5.18	Employee Lounge	1	360	360	1.50	540	$150.00	$81,000
5.19	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
5.20	Electrical Room (w/ SB)	1	144	144	1.33	192	$500.00	$95,760
				11,944	1.71	20,412	$222.98	$4,551,446

UNC GLOBAL WOMEN'S HEALTH

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

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Ancillary facilities

6.0 New Facilities - Ancillary Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
6.01	CSS Central Sterilization with 2 Autoclaves	1	192	192	2.00	384	$800.00	$307,200
6.02	CSS Processing	1	288	288	2.00	576	$300.00	$172,800
6.03	CSS Storage and Distribution	1	576	576	2.00	1,152	$300.00	$345,600
6.04	Food Preparation Area	1	384	384	1.50	576	$300.00	$172,800
6.05	Food Cooking Area	1	576	576	1.50	864	$450.00	$388,800
6.06	Bulk Dry Storage	1	144	144	1.33	192	$180.00	$34,474
6.07	Bulk Refrigerated Storage	1	144	144	1.33	192	$300.00	$57,456
6.08	Bulk Freezer Storage	1	120	120	1.33	160	$350.00	$55,860
6.09	Day Stores	1	64	64	1.50	96	$180.00	$17,280
6.10	Tray Preparation Area	1	384	384	1.50	576	$300.00	$172,800
6.11	Food Cart Storage	1	192	192	1.33	255	$180.00	$45,965
6.12	Staff and Visitor Serving	1	829	829	1.50	1,244	$300.00	$373,200
6.13	Staff and Visitor Dining	50	20	1,000	1.33	1,330	$150.00	$199,500
6.14	Chef's Office	1	96	96	1.50	144	$150.00	$21,600
6.15	Scullery	1	48	48	1.50	72	$250.00	$18,000
6.16	Dishwashing Area	1	128	128	1.50	192	$300.00	$57,600
6.17	Dish Storage	1	144	144	1.33	192	$180.00	$34,474
6.18	Food Service Receiving/Trash/Can Wash	1	192	192	1.50	288	$150.00	$43,200
6.19	Laundry Washing Area	1	400	400	1.50	600	$350.00	$210,000
6.20	Laundry Drying Area	1	400	400	1.50	600	$300.00	$180,000
6.21	Folding Area	1	400	400	1.50	600	$180.00	$108,000
6.22	Detergent Storage	1	24	24	1.33	32	$150.00	$4,788
6.23	Soiled Linen Staging	1	144	144	1.50	216	$150.00	$32,400
6.24	Clean Linen Storage	1	144	144	1.50	216	$180.00	$38,880
6.25	Retail Laundry	1	360	360	1.50	540	$240.00	$129,600
6.26	General Maintenance Shop	1	576	576	1.50	864	$150.00	$129,600
6.27	Metal Maintenance Shop	1	576	576	1.50	864	$150.00	$129,600
6.28	Equipment Maintenance Shop	1	864	864	1.50	1,296	$200.00	$259,200
6.29	Toilets	4	240	960	1.50	1,440	$250.00	$360,000
6.30	Mechanical Room (w/ chiller(s) and AHU(s))	1	360	360	1.33	479	$500.00	$239,400
6.31	Electrical Room (w/ SB)	1	144	144	1.33	192	$500.00	$95,760
				10,853	1.51	16,422	$270.12	$4,435,836

UNC GLOBAL WOMEN'S HEALTH

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

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Teaching facilities

7.0 New Facilities - Teaching Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSF)	Total Net Area (NSF)	Grossing Factor	Total Gross Area (GSF)	Estimated Cost per GSF (USD)	Total Estimated Cost (USD)
7.01	Auditorium (70 seats)	70	25	1,750	1.67	2,923	$240.00	$701,400
7.02	Lobby and Refunction Space (70 Capacity)	70	20	1,400	1.67	2,338	$180.00	$420,840
7.03	Tutorial Rooms (3 @ 30 Capacity)	90	25	2,250	2.00	4,500	$200.00	$900,000
7.04	Demonstration Rooms (2 @ 24 Capacity)	48	50	2,400	2.00	4,800	$250.00	$1,200,000
7.05	Faculty Offices	10	100	1,000	1.67	1,670	$150.00	$250,500
7.06	Board Room (20 Capacity + Overflow)	20	35	700	1.67	1,169	$180.00	$210,420
7.07	Board Room Pre-Function (30 Capacity)	30	15	450	1.67	752	$180.00	$135,270
7.08	Chemistry Research Lab (1 Lab Module)	1	300	300	2.00	600	$350.00	$210,000
7.09	Biology Research Lab (1 Lab Module)	1	300	300	2.00	600	$250.00	$150,000
7.10	Lab Prep and Chemical Storage	1	240	240	2.00	480	$200.00	$96,000
7.11	Toilets	2	240	480	1.50	720	$250.00	$180,000
7.12	Mechanical Room with AHU	1	144	144	1.33	192	$200.00	$38,304
7.13	Electrical Room	1	96	96	1.33	128	$200.00	$25,536
				11,510	1.81	20,870	$216.49	$4,518,270

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Summary of space requirements

Summary

Area Number	Area Name	Area (GSF)	Estimated Construction Cost (USD)	Estimated Unscheduled FF&E Costs (USD)	Estimated Fees and Soft Costs (USD) @ 20%	Sub-Total Costs (USD)	Contingency (USD) @ 30%	Estimated Construction Budget (USD)
1.0	Obstetrics Surgery	47,983	$12,910,915	$2,750,000	$3,132,183	$18,793,098	$5,637,929	$24,431,027
2.0	Gynecologic Oncology & Pelvic Reconstruction Surgery	66,016	$16,630,019	$3,750,000	$4,076,004	$24,456,023	$7,336,807	$31,792,830
3.0	Imaging	6,594	$3,907,302	$230,794	$827,619	$4,965,715	$1,489,715	$6,455,430
4.0	Laboratory and Pharmacy	8,528	$2,688,357	$852,824	$708,236	$4,249,417	$1,274,825	$5,524,242
5.0	Obstetrics and Gynecology Clinics	20,412	$4,551,446	$1,074,407	$1,125,171	$6,751,025	$2,025,307	$8,776,332
6.0	Ancillary Facilities	16,422	$4,435,836	$2,463,264	$1,379,820	$8,278,920	$2,483,676	$10,762,596
7.0	Teaching Facilities	20,870	$4,518,270	$1,043,510	$1,112,356	$6,674,136	$2,002,241	$8,676,377
		186,825	$49,642,145	$12,164,800	$12,361,389	$74,168,334	$22,250,500	$96,418,834

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Cost breakdown

Breakdown

Area of Cost	Total Estimated Cost (USD)	Estimated Cost per Square Foot (USD)
Construction	$47,802,145	$255.87
Equipment and FF&E	$14,004,800	$74.96
Fees and Soft Costs	$12,361,389	$66.17
Contingency	$22,250,500	$119.10
	$96,418,834	$516.09

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Utilization – patient throughput

Utilization - Patient Throughput

Area	Utilization Function	Number	Unit	Total/Day	Total/Year
1.01	OB Surgeries/Day (2/hour/OT x 8 Hr/Day) + Emergencies	16	per OT	32	11,680
2.01	GYN Surgeries/Day (2/day/OT) + Emergencies	2	per OT	6	1,500
3.02	CAT Scans/Day (2/hour/CT x 8Hr/Day)	16	per CT	32	8,000
3.05	MRI Scans/Day (1/hour/MRI x 8 Hr/Day)	8	per MRI	8	2,000
3.08	PET Scans/Day (1/hour/PET x 8 Hr/Day)	8	per PET	8	2,000
3.11	X-Rays/Day (4/hour/X-Ray x 8 Hr/Day)	32	per X-Ray	32	8,000
5.01	Clinic Visits (3/hour/Provider x 8 Hr/Day)	24	per Provider	360	90,000
5.09	Fetal Ultrasounds (3/hour/Machine x 8 Hr/Day)	24	per Machine	72	18,000
5.10	Family Planning Visits (1/hour/room x 8 Hr/Day	8	per Room	32	8,000
1.14	OB Ward Patient Beds (3 Days/Patient)	104	Beds		12,653
1.23	OB Labor and Delivery Beds (1 Day/Patient)	80	Beds		29,200
2.14	GYN Emergency Intake Beds (2 Days/Patient)	25	Beds		4,563
2.18	GYN Ward Patient Beds (5 Days/Patient)	258	Beds		18,834

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Bed count

Bed Count	
Hospital Area	Beds
OB Pre-Op	20
OB Post-Op	20
OB Standard Patients	60
OB Premium Patients	40
OB Private Patients	4
OB Labor and Delivery	80
OB High-Risk Infants	20
Sub-Total OB Beds	**244**
GYN Pre-Op	12
GYN Post-Op	24
GYN Emergency	25
GYN Standard Patients	160
GYN Premium Patients	90
GYN Private Patients	8
Sub-Total GYN Beds	**319**
Total Beds	**563**

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Space requirements: **Obstetrics renovation (metric)**

- Obstetrics surgery
- Gynecological oncology and pelvic reconstruction surgery
- Imaging
- Laboratory and pharmacy
- Obstetrics and gynecology clinics
- Ancillary facilities
- Teaching facilities
- Summary
- Cost breakdown
- Utilization – patient throughput
- Bed count

Obstetric surgery

1.0 Renovated Facilities - Obstetrics Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
1.01	Obstetrics Operating Theater	3	33	100	1.67	168	$10,764	$1,803,600
1.02	Hand Wash Stations	3	1	4	1.33	6	$1,615	$9,576
1.03	Pre-Operative Holding	20	6	119	2.00	238	$2,691	$640,000
1.04	Post-Operative Care	20	6	119	2.00	238	$3,767	$896,000
1.05	Male Dressing/Shower/Locker	1	19	19	1.50	28	$2,153	$60,000
1.06	Female Dressing/Shower/Locker	1	37	37	1.50	56	$2,153	$120,000
1.07	Anesthesia Workroom	1	12	12	1.50	18	$2,476	$44,160
1.08	Sterile Storage	1	24	24	1.50	36	$1,615	$57,600
1.09	Medical Supply Storage	1	24	24	1.50	36	$1,615	$57,600
1.10	Equipment Storage	1	15	15	1.50	22	$1,076	$24,000
1.11	Clean Linen Storage	1	13	13	1.50	20	$1,076	$21,600
1.12	Soiled Linen Storage	1	13	13	1.50	20	$1,076	$21,600
1.13	Medical Records	1	13	13	1.50	20	$1,292	$25,920
1.14	Standard Patients Obstetrics Ward Beds	60	3	201	2.00	401	$1,615	$648,000
1.15	Standard Patient Nurses Stations	3	27	80	1.67	134	$2,153	$288,576
1.16	Standard Patient Linen & General Storage Rooms	6	13	80	1.67	134	$1,076	$144,288
1.17	Standard Patient Offices and Conference Rooms	6	13	80	1.67	134	$1,292	$173,146
1.18	Premium Patients Obstetrics Ward Beds	40	6	238	2.00	476	$1,615	$768,000
1.19	Premium Patient Nurses Stations	2	27	54	1.67	89	$2,153	$192,384
1.20	Premium Patient Linen & General Storage	4	13	54	1.67	89	$1,076	$96,192
1.21	Premium Patient Offices and Conference Rooms	4	13	54	1.67	89	$1,292	$115,430
1.22	Private Single-Occupancy Rooms with Toilets	4	14	56	2.00	111	$1,938	$216,000
1.23	Labor and Delivery Ward Beds	80	3	268	2.00	535	$1,615	$864,000
1.24	Labor and Delivery Nurses Stations	4	27	107	1.67	179	$2,153	$384,768
1.25	Labor and Delivery Linen and General Storage	4	13	54	1.67	89	$1,076	$96,192
1.26	Labor and Delivery Offices and Conference Rooms	4	13	54	1.67	89	$1,292	$115,430
1.27	High-Risk Infant Care Unit Beds	20	6	126	2.00	253	$2,153	$544,000
1.28	High-Risk Infant Care Nurses Station	1	27	27	1.67	45	$2,153	$96,192
1.29	High-Risk Reception/Triage/Holding	1	13	13	1.67	22	$1,292	$28,858
1.30	High Risk Family Waiting and Viewing	1	13	13	1.67	22	$1,292	$28,858
1.31	High-Risk Infant Care Linen & General Storage	2	13	27	1.67	45	$1,076	$48,096
1.32	High-Risk Infant Care Office and Conference	2	13	27	1.67	45	$1,292	$57,715
1.33	Male Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,153	$133,600
1.34	Female Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,153	$133,600
1.35	Call Rooms	2	11	22	2.00	45	$1,938	$86,400
1.36	Offices	2	7	15	1.50	22	$1,292	$28,800
1.37	Toilets	7	21	146	1.50	219	$2,153	$472,500
1.38	Patient Baths	10	5	46	2.00	93	$2,153	$200,000
1.39	Mechanical Room (w/ chiller(s) and AHU(s))	1	37	37	1.33	49	$4,306	$212,800
1.40	Electrical Room (w/ SG, ATS and UPS)	1	13	13	1.33	18	$5,382	$95,760
1.41	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				2,478	1.80	4,458	$2,291	$10,211,241

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Gynecological oncology and pelvic reconstruction surgery

2.0 New Faculties - Gynecologic Oncology and Pelvic Reconstruction Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
2.01	Gynecology Operating Theaters	4	33	134	1.67	223	$15,069	$3,366,720
2.02	Hand Wash Stations	4	1	6	1.33	8	$1,615	$12,768
2.03	Pre-Operative Holding	12	6	71	1.67	119	$3,229	$384,768
2.04	Post-Operative Care	24	6	143	1.67	238	$4,306	$1,026,048
2.05	Male Dressing/Shower/Locker	1	22	22	1.50	33	$2,583	$86,400
2.06	Female Dressing/Shower/Locker	1	37	37	1.50	56	$2,583	$144,000
2.07	Anesthesia Workroom	1	12	12	1.50	18	$2,960	$52,800
2.08	Sterile Storage	1	24	24	1.50	36	$1,938	$69,120
2.09	Medical Supply Storage	1	22	22	1.50	33	$1,938	$64,800
2.10	Equipment Storage	1	15	15	1.50	22	$1,292	$28,800
2.11	Clean Linen Storage	1	13	13	1.50	20	$1,292	$25,920
2.12	Soiled Linen Storage	1	13	13	1.50	20	$1,292	$25,920
2.13	Medical Records	1	13	13	1.50	20	$1,615	$32,400
2.14	Emergency Intake Ward Beds	25	3	84	2.00	167	$2,153	$360,000
2.15	Emergency Intake Nurses Stations	1	27	27	1.67	45	$2,583	$115,430
2.16	Emergency Intake Linen and General Storage	2	13	27	1.67	45	$1,292	$57,715
2.17	Emergency Intake Offices and Conference Rooms	2	13	27	1.67	45	$1,615	$72,144
2.18	Standard Patients Ward Beds	160	3	535	2.00	1,070	$2,153	$2,304,000
2.19	Standard Patient Nurses Station	8	27	214	1.67	357	$2,583	$923,443
2.20	Standard Patient Linen & General Storage	16	13	214	1.67	357	$1,292	$461,722
2.21	Standard Patient Office and Conference	16	13	214	1.67	357	$1,615	$577,152
2.22	Premium Patients Ward Beds	90	6	535	2.00	1,070	$2,153	$2,304,000
2.23	Premium Patient Nurses Station	3	27	80	1.67	134	$2,583	$346,291
2.24	Premium Patient Linen & General Storage	6	13	80	1.67	134	$1,292	$173,146
2.25	Premium Patient Office and Conference	6	13	80	1.67	134	$1,615	$216,432
2.26	Private Single-Occupancy Rooms with Toilets	8	14	111	2.00	223	$2,583	$576,000
2.27	Male Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,583	$160,320
2.28	Female Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,583	$160,320
2.29	Call Rooms	2	11	22	2.00	45	$2,153	$96,000
2.30	Offices	2	7	15	1.50	22	$1,615	$36,000
2.31	Reception/Triage/Holding	1	22	22	1.50	33	$1,938	$64,800
2.32	Family Waiting	1	28	28	1.50	42	$1,615	$67,500
2.33	Toilets	10	21	209	1.50	314	$2,691	$843,750
2.34	Patient Baths	14	5	64	2.00	128	$2,691	$343,750
2.35	Enclosed, Elevated Connector with 1.0	1	372	372	1.00	372	$1,292	$480,000
2.36	Mechanical Room (w/ chiller(s) and AHU(s))	1	37	37	1.33	49	$5,382	$266,000
2.37	Electrical Room (w/ SG, ATS and UPS)	1	13	13	1.33	18	$8,073	$143,640
2.38	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				3,611	1.70	6,133	$2,712	$16,630,019

UNC GLOBAL WOMEN'S HEALTH

GBP GLOBAL BUSINESS PROJECT

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Imaging

3.0 New Facilities - Imaging

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
3.01	Computerized Tomography (CT) Scan Room	2	46	93	1.67	155	$4,844	$751,500
3.02	CAT Scanner Equipment	2	0	0	0.00	0	$-	$300,000
3.03	CAT Scan Station	1	13	13	1.67	22	$3,229	$72,144
3.04	Magnetic Resonance Imaging (MRI) Room	1	46	46	1.67	78	$4,844	$375,750
3.05	MRI Equipment	1	0	0	0.00	0	$-	$300,000
3.06	MRI Scan Station	1	13	13	1.67	22	$3,229	$72,144
3.07	Positron Emission Tomography (PET) Room	1	46	46	1.67	78	$4,844	$375,750
3.08	PET Equipment	1	0	0	0.00	0	$-	$500,000
3.09	PET Scan Station	1	13	13	1.67	22	$3,229	$72,144
3.10	Chest X-Ray Room	1	13	13	1.67	22	$3,767	$84,168
3.11	X-Ray Equipment	1	0	0	0.00	0	$-	$125,000
3.12	X-Ray Station	1	6	6	1.67	10	$2,960	$29,392
3.13	Medical Records	1	13	13	1.50	20	$1,615	$32,400
3.14	Offices	2	7	15	1.50	22	$1,615	$36,000
3.15	Reception/Waiting	1	24	24	1.50	36	$1,938	$69,120
3.16	Toilets	2	21	42	1.50	63	$2,691	$168,750
3.17	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
3.18	Electrical Room (w/ SG, ATS and UPS)	1	13	13	1.33	18	$8,073	$143,640
3.19	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				386	1.59	613	$6,378	$3,907,302

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Laboratory and pharmacy

4.0 New Facilities - Laboratory and Pharmacy

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
4.01	Medical Laboratory	1	71	71	2.00	143	$3,767	$537,600
4.02	Pathology Laboratory	1	54	54	2.00	107	$3,767	$403,200
4.03	Venipuncture and Sample Collection	2	6	12	1.67	20	$1,938	$38,477
4.04	Frozen Section Laboratory	1	24	24	2.00	48	$3,767	$179,200
4.05	Medical Records	1	13	13	1.50	20	$1,615	$32,400
4.06	Laboratory Office	1	7	7	1.50	11	$1,615	$18,000
4.07	Reception/Waiting	1	13	13	1.50	20	$1,615	$32,400
4.08	Toilets	2	6	12	1.50	18	$2,691	$48,000
4.09	Pharmacy	1	107	107	2.00	214	$3,767	$806,400
4.10	Pharmacy Controlled Storage	1	6	6	1.67	10	$5,382	$53,440
4.11	Pharmacy Receiving	1	12	12	1.67	20	$1,615	$32,064
4.12	Pharmacy Office	1	13	13	1.50	20	$1,615	$32,400
4.13	Pharmacy Patient Waiting and Dispensing	1	18	18	1.67	30	$1,615	$48,096
4.14	Pharmacy Hospital Dispensing	1	27	27	1.50	40	$1,615	$64,800
4.15	OBGYN Blood Bank	1	6	6	1.67	10	$2,691	$26,720
4.16	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
4.17	Electrical Room (w/ SB)	1	13	13	1.33	18	$5,382	$95,760
				442	1.79	792	$3,393	$2,688,357

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Obstetrics and gynecology clinic

5.0 New Facilities - Obstetrics and Gynecology (OBGYN) Clinics

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
5.01	Provider Offices	15	9	139	1.50	209	$1,292	$270,000
5.02	Practice Manager's Office	1	9	9	1.50	14	$1,292	$18,000
5.03	Obstetrics Nurse's Offices	3	9	28	1.50	42	$1,292	$54,000
5.04	Exam Rooms (2 per Provider)	30	9	279	2.00	557	$2,153	$1,200,000
5.05	Nurses Stations	4	15	59	1.67	99	$2,583	$256,512
5.06	Procedure Rooms	5	15	74	2.00	149	$2,583	$384,000
5.07	Fetal Monitor Room	3	15	45	1.67	74	$2,583	$192,384
5.08	Ultrasound Room	3	15	45	2.00	89	$2,583	$230,400
5.09	Ultrasound Equipment	3	0	0	0.00	0	$-	$135,000
5.10	Family Planning Consultation Rooms	4	9	37	1.67	62	$1,615	$135,000
5.11	Family Planning Waiting Room	1	13	13	1.67	22	$1,615	$135,000
5.12	Counseling Room	1	9	9	1.67	16	$1,615	$135,000
5.13	Medical Laboratory	1	24	24	1.67	40	$2,583	$102,605
5.14	Venipuncture and Sample Collection	1	54	54	1.67	89	$1,938	$173,146
5.15	Medical Records	1	18	18	1.50	27	$1,615	$43,200
5.16	Reception/Waiting	2	54	107	1.50	161	$1,938	$311,040
5.17	Toilets	4	22	89	1.50	134	$2,691	$360,000
5.18	Employee Lounge	1	33	33	1.50	50	$1,615	$81,000
5.19	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
5.20	Electrical Room (w/ SB)	1	13	13	1.33	18	$5,382	$95,760
				1,110	1.71	1,896	$2,400	$4,551,446

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Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

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Ancillary facilities

6.0 New Facilities - Ancillary Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
6.01	CSS Central Sterilization with 2 Autoclaves	1	18	18	2.00	36	$8,611	$307,200
6.02	CSS Processing	1	27	27	2.00	54	$3,229	$172,800
6.03	CSS Storage and Distribution	1	54	54	2.00	107	$3,229	$345,600
6.04	Food Preparation Area	1	36	36	1.50	54	$3,229	$172,800
6.05	Food Cooking Area	1	54	54	1.50	80	$4,844	$388,800
6.06	Bulk Dry Storage	1	13	13	1.33	18	$1,938	$34,474
6.07	Bulk Refrigerated Storage	1	13	13	1.33	18	$3,229	$57,456
6.08	Bulk Freezer Storage	1	11	11	1.33	15	$3,767	$55,860
6.09	Day Stores	1	6	6	1.50	9	$1,938	$17,280
6.10	Tray Preparation Area	1	36	36	1.50	54	$3,229	$172,800
6.11	Food Cart Storage	1	18	18	1.33	24	$1,938	$45,965
6.12	Staff and Visitor Serving	1	77	77	1.50	116	$3,229	$373,200
6.13	Staff and Visitor Dining	50	2	93	1.33	124	$1,615	$199,500
6.14	Chef's Office	1	9	9	1.50	13	$1,615	$21,600
6.15	Scullery	1	4	4	1.50	7	$2,691	$18,000
6.16	Dishwashing Area	1	12	12	1.50	18	$3,229	$57,600
6.17	Dish Storage	1	13	13	1.33	18	$1,938	$34,474
6.18	Food Service Receiving/Trash/Can Wash	1	18	18	1.50	27	$1,615	$43,200
6.19	Laundry Washing Area	1	37	37	1.50	56	$3,767	$210,000
6.20	Laundry Drying Area	1	37	37	1.50	56	$3,229	$180,000
6.21	Folding Area	1	37	37	1.50	56	$1,938	$108,000
6.22	Detergent Storage	1	2	2	1.33	3	$1,615	$4,788
6.23	Soiled Linen Staging	1	13	13	1.50	20	$1,615	$32,400
6.24	Clean Linen Storage	1	13	13	1.50	20	$1,938	$38,880
6.25	Retail Laundry	1	33	33	1.50	50	$2,583	$129,600
6.26	General Maintenance Shop	1	54	54	1.50	80	$1,615	$129,600
6.27	Metal Maintenance Shop	1	54	54	1.50	80	$1,615	$129,600
6.28	Equipment Maintenance Shop	1	80	80	1.50	120	$2,153	$259,200
6.29	Toilets	4	22	89	1.50	134	$2,691	$360,000
6.30	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
6.31	Electrical Room (w/ SB)	1	13	13	1.33	18	$5,382	$95,760
				1,008	1.51	1,526	$2,908	$4,435,836

UNC GLOBAL WOMEN'S HEALTH

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Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Teaching facilities

7.0 New Facilities - Teaching Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
7.01	Auditorium (70 seats)	70	2	163	1.67	272	$2,583	$701,400
7.02	Lobby and Refunction Space (70 Capacity)	70	2	130	1.67	217	$1,938	$420,840
7.03	Tutorial Rooms (3 @ 30 Capacity)	90	2	209	2.00	418	$2,153	$900,000
7.04	Demonstration Rooms (2 @ 24 Capacity)	48	5	223	2.00	446	$2,691	$1,200,000
7.05	Faculty Offices	10	9	93	1.67	155	$1,615	$250,500
7.06	Board Room (20 Capacity + Overflow)	20	3	65	1.67	109	$1,938	$210,420
7.07	Board Room Pre-Function (30 Capacity)	30	1	42	1.67	70	$1,938	$135,270
7.08	Chemistry Research Lab (1 Lab Module)	1	28	28	2.00	56	$3,767	$210,000
7.09	Biology Research Lab (1 Lab Module)	1	28	28	2.00	56	$2,691	$150,000
7.10	Lab Prep and Chemical Storage	1	22	22	2.00	45	$2,153	$96,000
7.11	Toilets	2	22	45	1.50	67	$2,691	$180,000
7.12	Mechanical Room with AHU	1	13	13	1.33	18	$2,153	$38,304
7.13	Electrical Room	1	9	9	1.33	12	$2,153	$25,536
				1,069	1.81	1,939	$2,330	$4,518,270

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Summary of space requirements

Summary

Area Number	Area Name	Area (GSM)	Estimated Construction Cost (USD)	Estimated Unscheduled FF&E Costs (USD)	Estimated Fees and Soft Costs (USD) @ 20%	Sub-Total Costs (USD)	Contingency (USD) @ 30%	Estimated Construction Budget (USD)
1.0	Obstetrics Surgery	4,458	$10,211,241	$2,750,000	$2,592,248	$15,553,489	$4,666,047	$20,219,536
2.0	Gynecologic Oncology & Pelvic Reconstruction Surgery	6,133	$16,630,019	$3,750,000	$4,076,004	$24,456,023	$7,336,807	$31,792,830
3.0	Imaging	613	$3,907,302	$230,794	$827,619	$4,965,715	$1,489,715	$6,455,430
4.0	Laboratory and Pharmacy	792	$2,688,357	$852,824	$708,236	$4,249,417	$1,274,825	$5,524,242
5.0	Obstetrics and Gynecology Clinics	1,896	$4,551,446	$1,074,407	$1,125,171	$6,751,025	$2,025,307	$8,776,332
6.0	Ancillary Facilities	1,526	$4,435,836	$2,463,264	$1,379,820	$8,278,920	$2,483,676	$10,762,596
7.0	Teaching Facilities	1,939	$4,518,270	$1,043,510	$1,112,356	$6,674,136	$2,002,241	$8,676,377
		17,357	$46,942,471	$12,164,800	$11,821,454	$70,928,725	$21,278,617	$92,207,342

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Cost breakdown

Breakdown

Area of Cost	Total Estimated Cost (USD)	Estimated Cost per Square Meter (USD)
Construction	$45,102,471	$2,599
Equipment and FF&E	$14,004,800	$807
Fees and Soft Costs	$11,821,454	$681
Contingency	$21,278,617	$1,226
	$92,207,342	$5,313

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Utilization – patient throughput

Utilization - Patient Throughput

Area	Utilization Function	Number	Unit	Total/Day	Total/Year
1.01	OB Surgeries/Day (2/hour/OT x 8 Hr/Day) + Emergencies	16	per OT	32	11,680
2.01	GYN Surgeries/Day (2/day/OT) + Emergencies	2	per OT	6	1,500
3.02	CAT Scans/Day (2/hour/CT x 8Hr/Day)	16	per CT	32	8,000
3.05	MRI Scans/Day (1/hour/MRI x 8 Hr/Day)	8	per MRI	8	2,000
3.08	PET Scans/Day (1/hour/PET x 8 Hr/Day)	8	per PET	8	2,000
3.11	X-Rays/Day (4/hour/X-Ray x 8 Hr/Day)	32	per X-Ray	32	8,000
5.01	Clinic Visits (3/hour/Provider x 8 Hr/Day)	24	per Provider	360	90,000
5.09	Fetal Ultrasounds (3/hour/Machine x 8 Hr/Day)	24	per Machine	72	18,000
5.10	Family Planning Visits (1/hour/room x 8 Hr/Day	8	per Room	32	8,000
1.14	OB Ward Patient Beds (3 Days/Patient)	104	Beds		12,653
1.23	OB Labor and Delivery Beds (1 Day/Patient)	80	Beds		29,200
2.14	GYN Emergency Intake Beds (2 Days/Patient)	25	Beds		4,563
2.18	GYN Ward Patient Beds (5 Days/Patient)	258	Beds		18,834

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Bed count

Bed Count	
Hospital Area	Beds
OB Pre-Op	20
OB Post-Op	20
OB Standard Patients	60
OB Premium Patients	40
OB Private Patients	4
OB Labor and Delivery	80
OB High-Risk Infants	20
Sub-Total OB Beds	**244**
GYN Pre-Op	12
GYN Post-Op	24
GYN Emergency	25
GYN Standard Patients	160
GYN Premium Patients	90
GYN Private Patients	8
Sub-Total GYN Beds	**319**
Total Beds	**563**

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Space requirements: **All new construction (metric)**

- Obstetrics surgery
- Gynecological oncology and pelvic reconstruction surgery
- Imaging
- Laboratory and pharmacy
- Obstetrics and gynecology clinics
- Ancillary facilities
- Teaching facilities
- Summary
- Cost breakdown
- Utilization – patient throughput
- Bed count

Obstetric surgery

1.0 New Facilities - Obstetrics Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
1.01	Obstetrics Operating Theater	3	33	100	1.67	168	$15,069	$2,525,040
1.02	Hand Wash Stations	3	1	4	1.33	6	$2,153	$12,768
1.03	Pre-Operative Holding	20	6	119	2.00	238	$3,229	$768,000
1.04	Post-Operative Care	20	6	119	2.00	238	$4,306	$1,024,000
1.05	Male Dressing/Shower/Locker	1	19	19	1.50	28	$2,583	$72,000
1.06	Female Dressing/Shower/Locker	1	37	37	1.50	56	$2,583	$144,000
1.07	Anesthesia Workroom	1	12	12	1.50	18	$2,960	$52,800
1.08	Sterile Storage	1	24	24	1.50	36	$1,938	$69,120
1.09	Medical Supply Storage	1	24	24	1.50	36	$1,938	$69,120
1.10	Equipment Storage	1	15	15	1.50	22	$1,292	$28,800
1.11	Clean Linen Storage	1	13	13	1.50	20	$1,292	$25,920
1.12	Soiled Linen Storage	1	13	13	1.50	20	$1,292	$25,920
1.13	Medical Records	1	13	13	1.50	20	$1,615	$32,400
1.14	Standard Patients Obstetrics Ward Beds	60	3	201	2.00	401	$2,153	$864,000
1.15	Standard Patient Nurses Stations	3	27	80	1.67	134	$2,583	$346,291
1.16	Standard Patient Linen & General Storage Rooms	6	13	80	1.67	134	$1,292	$173,146
1.17	Standard Patient Offices and Conference Rooms	6	13	80	1.67	134	$1,615	$216,432
1.18	Premium Patients Obstetrics Ward Beds	40	6	238	2.00	476	$2,153	$1,024,000
1.19	Premium Patient Nurses Stations	2	27	54	1.67	89	$2,583	$230,861
1.20	Premium Patient Linen & General Storage	4	13	54	1.67	89	$1,292	$115,430
1.21	Premium Patient Offices and Conference Rooms	4	13	54	1.67	89	$1,615	$144,288
1.22	Private Single-Occupancy Rooms with Toilets	4	14	56	2.00	111	$2,153	$240,000
1.23	Labor and Delivery Ward Beds	80	3	268	2.00	535	$2,153	$1,152,000
1.24	Labor and Delivery Nurses Stations	4	27	107	1.67	179	$2,583	$461,722
1.25	Labor and Delivery Linen and General Storage	4	13	54	1.67	89	$1,292	$115,430
1.26	Labor and Delivery Offices and Conference Rooms	4	13	54	1.67	89	$1,615	$144,288
1.27	High-Risk Infant Care Unit Beds	20	6	126	2.00	253	$2,583	$652,800
1.28	High-Risk Infant Care Nurses Station	1	27	27	1.67	45	$2,583	$115,430
1.29	High-Risk Reception/Triage/Holding	1	13	13	1.67	22	$1,615	$36,072
1.30	High Risk Family Waiting and Viewing	1	13	13	1.67	22	$1,615	$36,072
1.31	High-Risk Infant Care Linen & General Storage	2	13	27	1.67	45	$1,292	$57,715
1.32	High-Risk Infant Care Office and Conference	2	13	27	1.67	45	$1,615	$72,144
1.33	Male Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,583	$160,320
1.34	Female Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,583	$160,320
1.35	Call Rooms	2	11	22	2.00	45	$2,153	$96,000
1.36	Offices	2	7	15	1.50	22	$1,615	$36,000
1.37	Toilets	7	21	146	1.50	219	$2,691	$590,625
1.38	Patient Baths	10	5	46	2.00	93	$2,691	$250,000
1.39	Mechanical Room (w/ chiller(s) and AHU(s))	1	37	37	1.33	49	$5,382	$266,000
1.40	Electrical Room (w/ SG, ATS and UPS)	1	13	13	1.33	18	$8,073	$143,640
1.41	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				2,478	1.80	4,458	$2,896	$12,910,915

UNC GLOBAL WOMEN'S HEALTH

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Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Gynecological oncology and pelvic reconstruction surgery

2.0 New Faculties - Gynecologic Oncology and Pelvic Reconstruction Surgery

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
2.01	Gynecology Operating Theaters	4	33	134	1.67	223	$15,069	$3,366,720
2.02	Hand Wash Stations	4	1	6	1.33	8	$1,615	$12,768
2.03	Pre-Operative Holding	12	6	71	1.67	119	$3,229	$384,768
2.04	Post-Operative Care	24	6	143	1.67	238	$4,306	$1,026,048
2.05	Male Dressing/Shower/Locker	1	22	22	1.50	33	$2,583	$86,400
2.06	Female Dressing/Shower/Locker	1	37	37	1.50	56	$2,583	$144,000
2.07	Anesthesia Workroom	1	12	12	1.50	18	$2,960	$52,800
2.08	Sterile Storage	1	24	24	1.50	36	$1,938	$69,120
2.09	Medical Supply Storage	1	22	22	1.50	33	$1,938	$64,800
2.10	Equipment Storage	1	15	15	1.50	22	$1,292	$28,800
2.11	Clean Linen Storage	1	13	13	1.50	20	$1,292	$25,920
2.12	Soiled Linen Storage	1	13	13	1.50	20	$1,292	$25,920
2.13	Medical Records	1	13	13	1.50	20	$1,615	$32,400
2.14	Emergency Intake Ward Beds	25	3	84	2.00	167	$2,153	$360,000
2.15	Emergency Intake Nurses Stations	1	27	27	1.67	45	$2,583	$115,430
2.16	Emergency Intake Linen and General Storage	2	13	27	1.67	45	$1,292	$57,715
2.17	Emergency Intake Offices and Conference Rooms	2	13	27	1.67	45	$1,615	$72,144
2.18	Standard Patients Ward Beds	160	3	535	2.00	1,070	$2,153	$2,304,000
2.19	Standard Patient Nurses Station	8	27	214	1.67	357	$2,583	$923,443
2.20	Standard Patient Linen & General Storage	16	13	214	1.67	357	$1,292	$461,722
2.21	Standard Patient Office and Conference	16	13	214	1.67	357	$1,615	$577,152
2.22	Premium Patients Ward Beds	90	6	535	2.00	1,070	$2,153	$2,304,000
2.23	Premium Patient Nurses Station	3	27	80	1.67	134	$2,583	$346,291
2.24	Premium Patient Linen & General Storage	6	13	80	1.67	134	$1,292	$173,146
2.25	Premium Patient Office and Conference	6	13	80	1.67	134	$1,615	$216,432
2.26	Private Single-Occupancy Rooms with Toilets	8	14	111	2.00	223	$2,583	$576,000
2.27	Male Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,583	$160,320
2.28	Female Nurse Dressing/Shower/Locker	1	37	37	1.67	62	$2,583	$160,320
2.29	Call Rooms	2	11	22	2.00	45	$2,153	$96,000
2.30	Offices	2	7	15	1.50	22	$1,615	$36,000
2.31	Reception/Triage/Holding	1	22	22	1.50	33	$1,938	$64,800
2.32	Family Waiting	1	28	28	1.50	42	$1,615	$67,500
2.33	Toilets	10	21	209	1.50	314	$2,691	$843,750
2.34	Patient Baths	14	5	64	2.00	128	$2,691	$343,750
2.35	Enclosed, Elevated Connector with 1.0	1	372	372	1.00	372	$1,292	$480,000
2.36	Mechanical Room (w/ chiller(s) and AHU(s))	1	37	37	1.33	49	$5,382	$266,000
2.37	Electrical Room (w/ SG, ATS and UPS)	1	13	13	1.33	18	$8,073	$143,640
2.38	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				3,611	1.70	6,133	$2,712	$16,630,019

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Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Imaging

3.0 New Facilities - Imaging

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
3.01	Computerized Tomography (CT) Scan Room	2	46	93	1.67	155	$4,844	$751,500
3.02	CAT Scanner Equipment	2	0	0	0.00	0	$-	$300,000
3.03	CAT Scan Station	1	13	13	1.67	22	$3,229	$72,144
3.04	Magnetic Resonance Imaging (MRI) Room	1	46	46	1.67	78	$4,844	$375,750
3.05	MRI Equipment	1	0	0	0.00	0	$-	$300,000
3.06	MRI Scan Station	1	13	13	1.67	22	$3,229	$72,144
3.07	Positron Emission Tomography (PET) Room	1	46	46	1.67	78	$4,844	$375,750
3.08	PET Equipment	1	0	0	0.00	0	$-	$500,000
3.09	PET Scan Station	1	13	13	1.67	22	$3,229	$72,144
3.10	Chest X-Ray Room	1	13	13	1.67	22	$3,767	$84,168
3.11	X-Ray Equipment	1	0	0	0.00	0	$-	$125,000
3.12	X-Ray Station	1	6	6	1.67	10	$2,960	$29,392
3.13	Medical Records	1	13	13	1.50	20	$1,615	$32,400
3.14	Offices	2	7	15	1.50	22	$1,615	$36,000
3.15	Reception/Waiting	1	24	24	1.50	36	$1,938	$69,120
3.16	Toilets	2	21	42	1.50	63	$2,691	$168,750
3.17	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
3.18	Electrical Room (w/ SG, ATS and UPS)	1	13	13	1.33	18	$8,073	$143,640
3.19	750 kVA Diesel Generator	1	0	0	0.00	0	$-	$160,000
				386	1.59	613	$6,378	$3,907,302

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Laboratory and pharmacy

4.0 New Facilities - Laboratory and Pharmacy

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
4.01	Medical Laboratory	1	71	71	2.00	143	$3,767	$537,600
4.02	Pathology Laboratory	1	54	54	2.00	107	$3,767	$403,200
4.03	Venipuncture and Sample Collection	2	6	12	1.67	20	$1,938	$38,477
4.04	Frozen Section Laboratory	1	24	24	2.00	48	$3,767	$179,200
4.05	Medical Records	1	13	13	1.50	20	$1,615	$32,400
4.06	Laboratory Office	1	7	7	1.50	11	$1,615	$18,000
4.07	Reception/Waiting	1	13	13	1.50	20	$1,615	$32,400
4.08	Toilets	2	6	12	1.50	18	$2,691	$48,000
4.09	Pharmacy	1	107	107	2.00	214	$3,767	$806,400
4.10	Pharmacy Controlled Storage	1	6	6	1.67	10	$5,382	$53,440
4.11	Pharmacy Receiving	1	12	12	1.67	20	$1,615	$32,064
4.12	Pharmacy Office	1	13	13	1.50	20	$1,615	$32,400
4.13	Pharmacy Patient Waiting and Dispensing	1	18	18	1.67	30	$1,615	$48,096
4.14	Pharmacy Hospital Dispensing	1	27	27	1.50	40	$1,615	$64,800
4.15	OBGYN Blood Bank	1	6	6	1.67	10	$2,691	$26,720
4.16	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
4.17	Electrical Room (w/ SB)	1	13	13	1.33	18	$5,382	$95,760
				442	1.79	792	$3,393	$2,688,357

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Obstetrics and gynecology clinics

5.0 New Facilities - Obstetrics and Gynecology (OBGYN) Clinics

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
5.01	Provider Offices	15	9	139	1.50	209	$1,292	$270,000
5.02	Practice Manager's Office	1	9	9	1.50	14	$1,292	$18,000
5.03	Obstetrics Nurse's Offices	3	9	28	1.50	42	$1,292	$54,000
5.04	Exam Rooms (2 per Provider)	30	9	279	2.00	557	$2,153	$1,200,000
5.05	Nurses Stations	4	15	59	1.67	99	$2,583	$256,512
5.06	Procedure Rooms	5	15	74	2.00	149	$2,583	$384,000
5.07	Fetal Monitor Room	3	15	45	1.67	74	$2,583	$192,384
5.08	Ultrasound Room	3	15	45	2.00	89	$2,583	$230,400
5.09	Ultrasound Equipment	3	0	0	0.00	0	$-	$135,000
5.10	Family Planning Consultation Rooms	4	9	37	1.67	62	$1,615	$135,000
5.11	Family Planning Waiting Room	1	13	13	1.67	22	$1,615	$135,000
5.12	Counseling Room	1	9	9	1.67	16	$1,615	$135,000
5.13	Medical Laboratory	1	24	24	1.67	40	$2,583	$102,605
5.14	Venipuncture and Sample Collection	1	54	54	1.67	89	$1,938	$173,146
5.15	Medical Records	1	18	18	1.50	27	$1,615	$43,200
5.16	Reception/Waiting	2	54	107	1.50	161	$1,938	$311,040
5.17	Toilets	4	22	89	1.50	134	$2,691	$360,000
5.18	Employee Lounge	1	33	33	1.50	50	$1,615	$81,000
5.19	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
5.20	Electrical Room (w/ SB)	1	13	13	1.33	18	$5,382	$95,760
				1,110	1.71	1,896	$2,400	$4,551,446

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Ancillary facilities

6.0 New Facilities - Ancillary Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
6.01	CSS Central Sterilization with 2 Autoclaves	1	18	18	2.00	36	$8,611	$307,200
6.02	CSS Processing	1	27	27	2.00	54	$3,229	$172,800
6.03	CSS Storage and Distribution	1	54	54	2.00	107	$3,229	$345,600
6.04	Food Preparation Area	1	36	36	1.50	54	$3,229	$172,800
6.05	Food Cooking Area	1	54	54	1.50	80	$4,844	$388,800
6.06	Bulk Dry Storage	1	13	13	1.33	18	$1,938	$34,474
6.07	Bulk Refrigerated Storage	1	13	13	1.33	18	$3,229	$57,456
6.08	Bulk Freezer Storage	1	11	11	1.33	15	$3,767	$55,860
6.09	Day Stores	1	6	6	1.50	9	$1,938	$17,280
6.10	Tray Preparation Area	1	36	36	1.50	54	$3,229	$172,800
6.11	Food Cart Storage	1	18	18	1.33	24	$1,938	$45,965
6.12	Staff and Visitor Serving	1	77	77	1.50	116	$3,229	$373,200
6.13	Staff and Visitor Dining	50	2	93	1.33	124	$1,615	$199,500
6.14	Chef's Office	1	9	9	1.50	13	$1,615	$21,600
6.15	Scullery	1	4	4	1.50	7	$2,691	$18,000
6.16	Dishwashing Area	1	12	12	1.50	18	$3,229	$57,600
6.17	Dish Storage	1	13	13	1.33	18	$1,938	$34,474
6.18	Food Service Receiving/Trash/Can Wash	1	18	18	1.50	27	$1,615	$43,200
6.19	Laundry Washing Area	1	37	37	1.50	56	$3,767	$210,000
6.20	Laundry Drying Area	1	37	37	1.50	56	$3,229	$180,000
6.21	Folding Area	1	37	37	1.50	56	$1,938	$108,000
6.22	Detergent Storage	1	2	2	1.33	3	$1,615	$4,788
6.23	Soiled Linen Staging	1	13	13	1.50	20	$1,615	$32,400
6.24	Clean Linen Storage	1	13	13	1.50	20	$1,938	$38,880
6.25	Retail Laundry	1	33	33	1.50	50	$2,583	$129,600
6.26	General Maintenance Shop	1	54	54	1.50	80	$1,615	$129,600
6.27	Metal Maintenance Shop	1	54	54	1.50	80	$1,615	$129,600
6.28	Equipment Maintenance Shop	1	80	80	1.50	120	$2,153	$259,200
6.29	Toilets	4	22	89	1.50	134	$2,691	$360,000
6.30	Mechanical Room (w/ chiller(s) and AHU(s))	1	33	33	1.33	44	$5,382	$239,400
6.31	Electrical Room (w/ SB)	1	13	13	1.33	18	$5,382	$95,760
				1,008	1.51	1,526	$2,908	$4,435,836

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Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

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Teaching facilities

7.0 New Facilities - Teaching Facilities

Space Number	Space Name	Quantity	Net Area per Space (NSM)	Total Net Area (NSM)	Grossing Factor	Total Gross Area (GSM)	Estimated Cost per GSM (USD)	Total Estimated Cost (USD)
7.01	Auditorium (70 seats)	70	2	163	1.67	272	$2,583	$701,400
7.02	Lobby and Refunction Space (70 Capacity)	70	2	130	1.67	217	$1,938	$420,840
7.03	Tutorial Rooms (3 @ 30 Capacity)	90	2	209	2.00	418	$2,153	$900,000
7.04	Demonstration Rooms (2 @ 24 Capacity)	48	5	223	2.00	446	$2,691	$1,200,000
7.05	Faculty Offices	10	9	93	1.67	155	$1,615	$250,500
7.06	Board Room (20 Capacity + Overflow)	20	3	65	1.67	109	$1,938	$210,420
7.07	Board Room Pre-Function (30 Capacity)	30	1	42	1.67	70	$1,938	$135,270
7.08	Chemistry Research Lab (1 Lab Module)	1	28	28	2.00	56	$3,767	$210,000
7.09	Biology Research Lab (1 Lab Module)	1	28	28	2.00	56	$2,691	$150,000
7.10	Lab Prep and Chemical Storage	1	22	22	2.00	45	$2,153	$96,000
7.11	Toilets	2	22	45	1.50	67	$2,691	$180,000
7.12	Mechanical Room with AHU	1	13	13	1.33	18	$2,153	$38,304
7.13	Electrical Room	1	9	9	1.33	12	$2,153	$25,536
				1,069	1.81	1,939	$2,330	$4,518,270

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Summary of space requirements

Summary

Area Number	Area Name	Area (GSM)	Estimated Construction Cost (USD)	Estimated Unscheduled FF&E Costs (USD)	Estimated Fees and Soft Costs (USD) @ 20%	Sub-Total Costs (USD)	Contingency (USD) @ 30%	Estimated Construction Budget (USD)
1.0	Obstetrics Surgery	4,458	$12,910,915	$2,750,000	$3,132,183	$18,793,098	$5,637,929	$24,431,027
2.0	Gynecologic Oncology & Pelvic Reconstruction Surgery	6,133	$16,630,019	$3,750,000	$4,076,004	$24,456,023	$7,336,807	$31,792,830
3.0	Imaging	613	$3,907,302	$230,794	$827,619	$4,965,715	$1,489,715	$6,455,430
4.0	Laboratory and Pharmacy	792	$2,688,357	$852,824	$708,236	$4,249,417	$1,274,825	$5,524,242
5.0	Obstetrics and Gynecology Clinics	1,896	$4,551,446	$1,074,407	$1,125,171	$6,751,025	$2,025,307	$8,776,332
6.0	Ancillary Facilities	1,526	$4,435,836	$2,463,264	$1,379,820	$8,278,920	$2,483,676	$10,762,596
7.0	Teaching Facilities	1,939	$4,518,270	$1,043,510	$1,112,356	$6,674,136	$2,002,241	$8,676,377
		17,357	$49,642,145	$12,164,800	$12,361,389	$74,168,334	$22,250,500	$96,418,834

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Cost breakdown

Breakdown

Area of Cost	Total Estimated Cost (USD)	Estimated Cost per Square Meter (USD)
Construction	$47,802,145	$2,754
Equipment and FF&E	$14,004,800	$807
Fees and Soft Costs	$12,361,389	$712
Contingency	$22,250,500	$1,282
	$96,418,834	$5,555

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Utilization – patient throughput

Utilization - Patient Throughput

Area	Utilization Function	Number	Unit	Total/Day	Total/Year
1.01	OB Surgeries/Day (2/hour/OT x 8 Hr/Day) + Emergencies	16	per OT	32	11,680
2.01	GYN Surgeries/Day (2/day/OT) + Emergencies	2	per OT	6	1,500
3.02	CAT Scans/Day (2/hour/CT x 8Hr/Day)	16	per CT	32	8,000
3.05	MRI Scans/Day (1/hour/MRI x 8 Hr/Day)	8	per MRI	8	2,000
3.08	PET Scans/Day (1/hour/PET x 8 Hr/Day)	8	per PET	8	2,000
3.11	X-Rays/Day (4/hour/X-Ray x 8 Hr/Day)	32	per X-Ray	32	8,000
5.01	Clinic Visits (3/hour/Provider x 8 Hr/Day)	24	per Provider	360	90,000
5.09	Fetal Ultrasounds (3/hour/Machine x 8 Hr/Day)	24	per Machine	72	18,000
5.10	Family Planning Visits (1/hour/room x 8 Hr/Day	8	per Room	32	8,000
1.14	OB Ward Patient Beds (3 Days/Patient)	104	Beds		12,653
1.23	OB Labor and Delivery Beds (1 Day/Patient)	80	Beds		29,200
2.14	GYN Emergency Intake Beds (2 Days/Patient)	25	Beds		4,563
2.18	GYN Ward Patient Beds (5 Days/Patient)	258	Beds		18,834

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews

Bed count

Bed Count	
Hospital Area	Beds
OB Pre-Op	20
OB Post-Op	20
OB Standard Patients	60
OB Premium Patients	40
OB Private Patients	4
OB Labor and Delivery	80
OB High-Risk Infants	20
Sub-Total OB Beds	**244**
GYN Pre-Op	12
GYN Post-Op	24
GYN Emergency	25
GYN Standard Patients	160
GYN Premium Patients	90
GYN Private Patients	8
Sub-Total GYN Beds	**319**
Total Beds	**563**

Source: Dudley Lacy (AIA, LEED AP), UTH staff interviews