

Towards Flexible and Adaptable Design of A&E Facilities in South Africa: The role of design guidelines

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Introduction

Study Area:

Accident and Emergency (A&E) facilities in South Africa.

Purpose of Study:

To address the role of design guidelines (DGs) and make recommendations on how to improve them

Objective:

To achieve more flexible and adaptable A&E designs





Introduction (Cont ...)

The New South Africa:

• **1994:** End of apartheid → First democratically elected government

• Significant changes in healthcare policies:

- **Equity**
- **Efficiency**
- **Effectiveness**
- **Responsiveness of the healthcare system**



Introduction (Cont ...)



Key Challenges

- **Lack of universal access to healthcare**
- **Inadequate provision of A&E facilities in poor areas**
- **Delays in A&E facilities project development process**



Outline of Presentation



- **Introduction**
- **Summary of Current Design Guidelines**
- **Study Aim and Design**
- **Conceptual Framework for Design Guideline Update**
- **Case Studies**
- **Methodology**
- **Findings**
- **Conclusions**
- **Reflections**



Introduction (Cont ...)

Summary of Apartheid Health- Care Policies:

**Dysfunctional healthcare system created
by the Apartheid government
(1948–1994)**

+

Migrant labour system

+

Vast income inequalities

+

Extreme violence



**HEALTHCARE FACILITIES
DEVELOPMENT AND
SERVICES DELIVERY**



Summary of Current DGs

• Existing A&E Design Guidelines:

South Africa Hospital Norms (SAH Norms); National Department of Health, 1980.

• Relevant DGs- extract (below)

DGs for the estimation of planning units for A&E (October 1987)

A&E facility	Planning units (PU)	Space needs	Area based on DGs	Cost Norm December 1979
•Emergency	•Patients:3 hour peak period	•Likely number of patients- 3-hour peak period •Use outpatient design guidelines; where the number of patients < than 60 in a 3-hour period	•430 m ² /60 patients plus 100 m ² for every additional 50 patients	•R 378/m ²



Research Aim and Design

Aim:

To assess the role of design guidelines for A&E facilities in South Africa so as to make recommendations on how to improve their design and project development process

Operational definition of DGs:

A set of principles and standards developed through research used for space design and provision, functional suitability, spatial relationships, and project development process for improved operational processes and quality of healthcare services delivery

(Source: Okpanum, 2010:22)



Domain of Functions

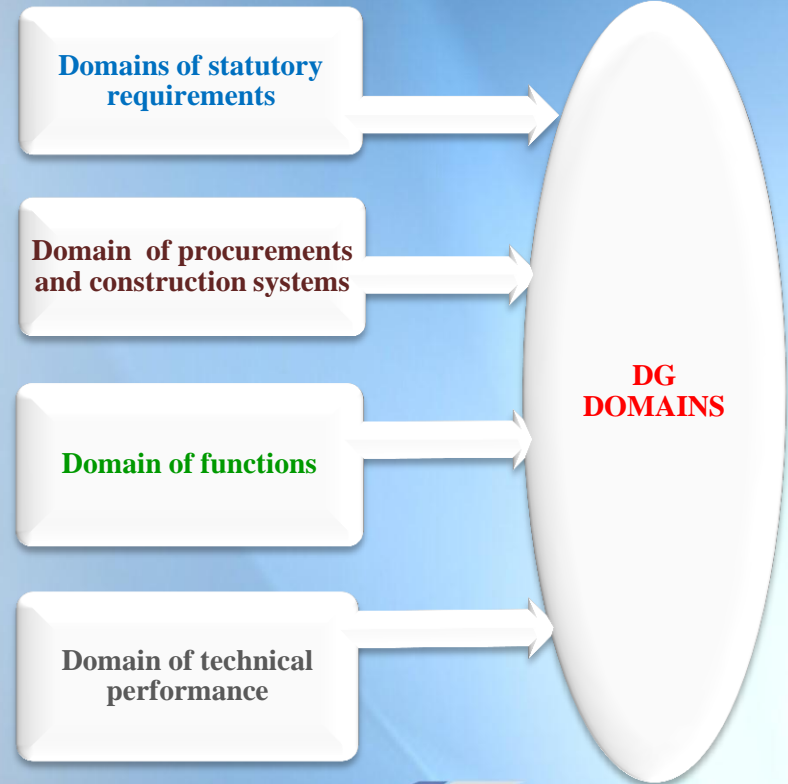


Objectives:

- 1) Proscriptive Guidelines
- 2) Prescriptive Guidelines
- 3) Performance Standards

Domains

- 1) Design Functions
- 2) Statutory requirements
- 3) Procurement and construction systems
- 4) Technical performance





Gaps identified in the existing DGs

Design Guidelines for A&E Facilities (DGAEF)

Challenges in the structure of the existing DGAEF:

- *Communication*
- *Effective use of resources*
- *Participatory process*
- *Technology innovation*
- *Institutional transformation*
- *Standardization*



Key Dimensions

Key dimensions- DGs

- 1) **A medium of communication**
 - *Interpretation, Translation, Continuous feedback, Evaluation, Education*
- 2) **A tool for efficient use of resources**
 - *Integration, Distribution, Equity, Attachment,*
 - *Value for money*
- 3) **A medium for the participatory process**
 - *Identity, Obligation, Influence, Needs, Usability, Knowledge involvement*



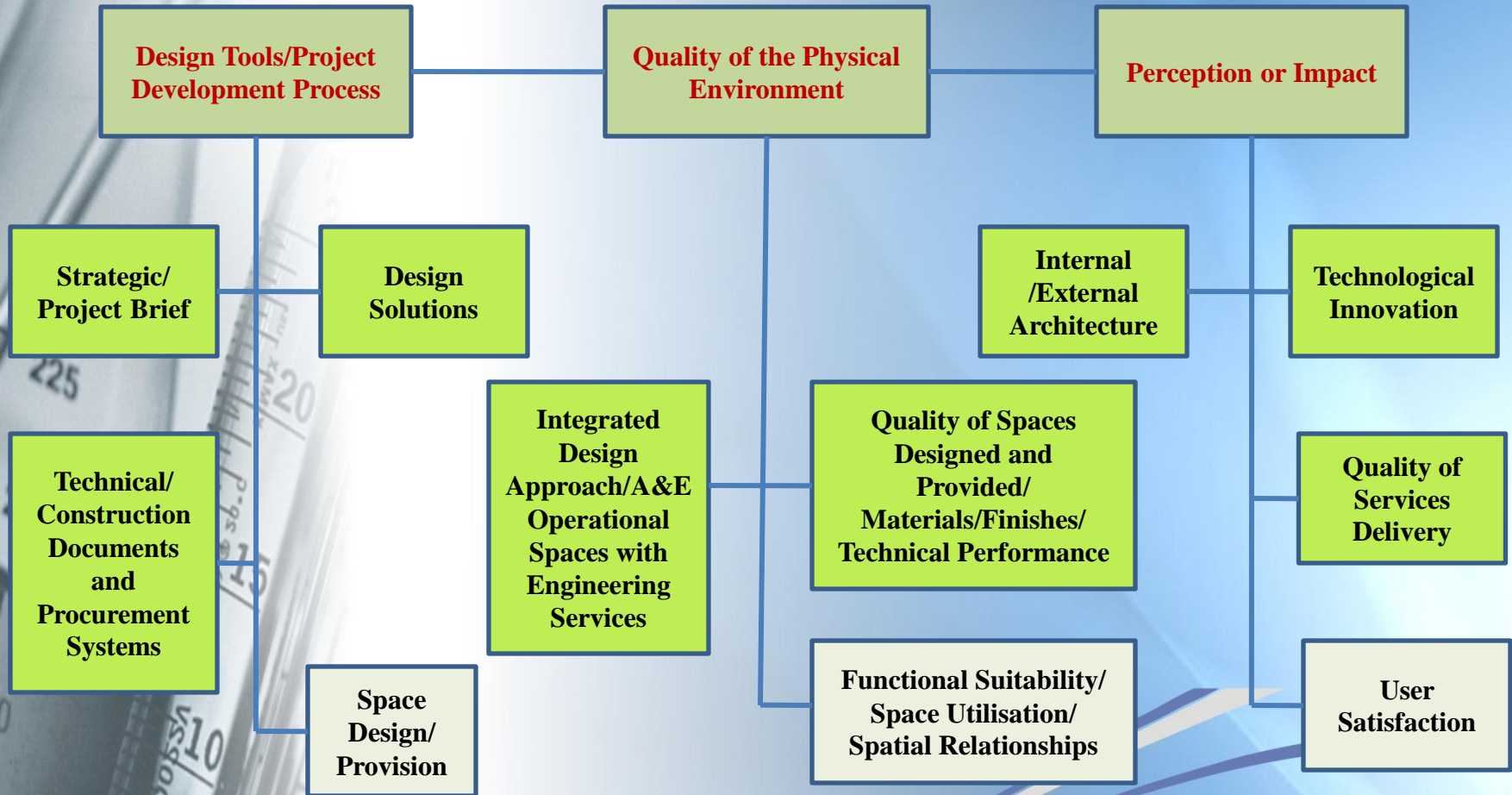
Key Dimensions

Key dimensions- DGs

- 4) **A tool for technological innovation**
 - *Performance, Operational processes,*
 - *Continuity, Information Systems, Visualization,*
 - *Physical Environment*
- 5) **Means of institutional transformation**
 - *Accessibility, Management,*
 - *Quality of Services, Procurement, Experience*
- 6) **Tool for standardization**
 - *Repetition, Pre- assembly, Flexibility,*
 - *Adaptability, Quality, Economic satisfaction, Time, Cost*
 - *Aesthetics*

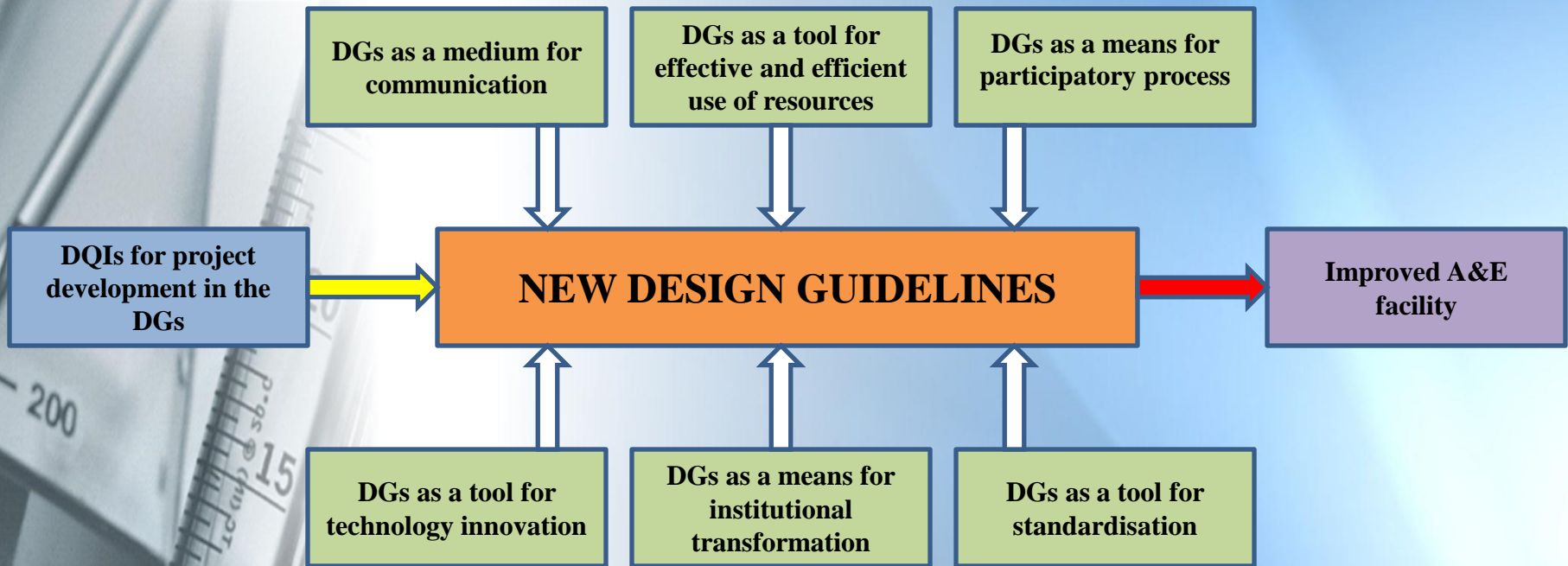


Emerging themes from this study





The Conceptual Framework for update of DGs





Context of Study: Map of South Africa



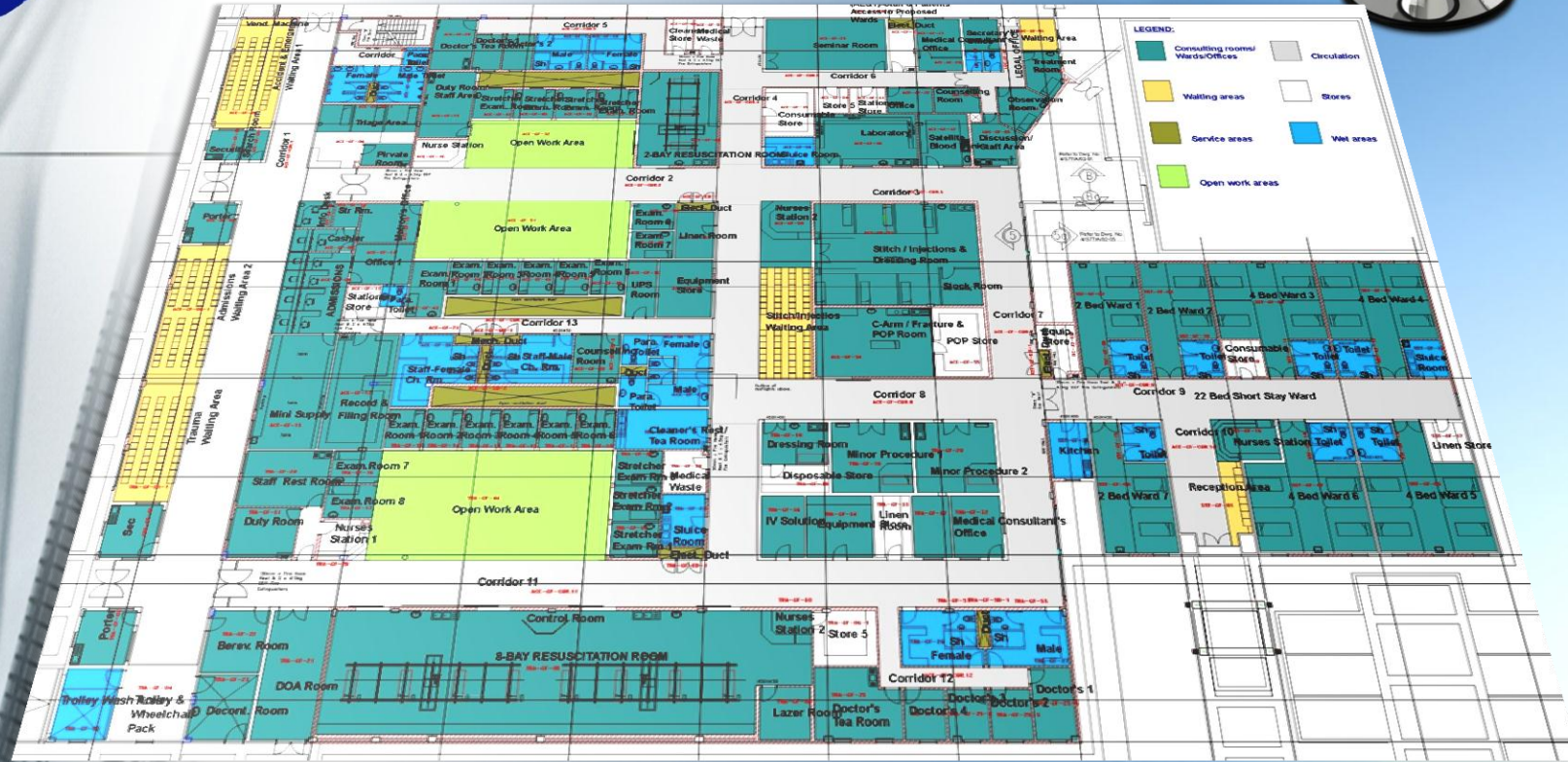


Location- A&E facilities: Gauteng Province





Case Study: Chris Hani Baragwanath Hospital



ZONE A



ZONE B



ZONE C





Case Study: Pretoria Academic Hospital



ZONE A  ZONE B  ZONE C  ZONE D 



Methodology

Pilot studies — Visits to existing A&E facilities in Gauteng Province



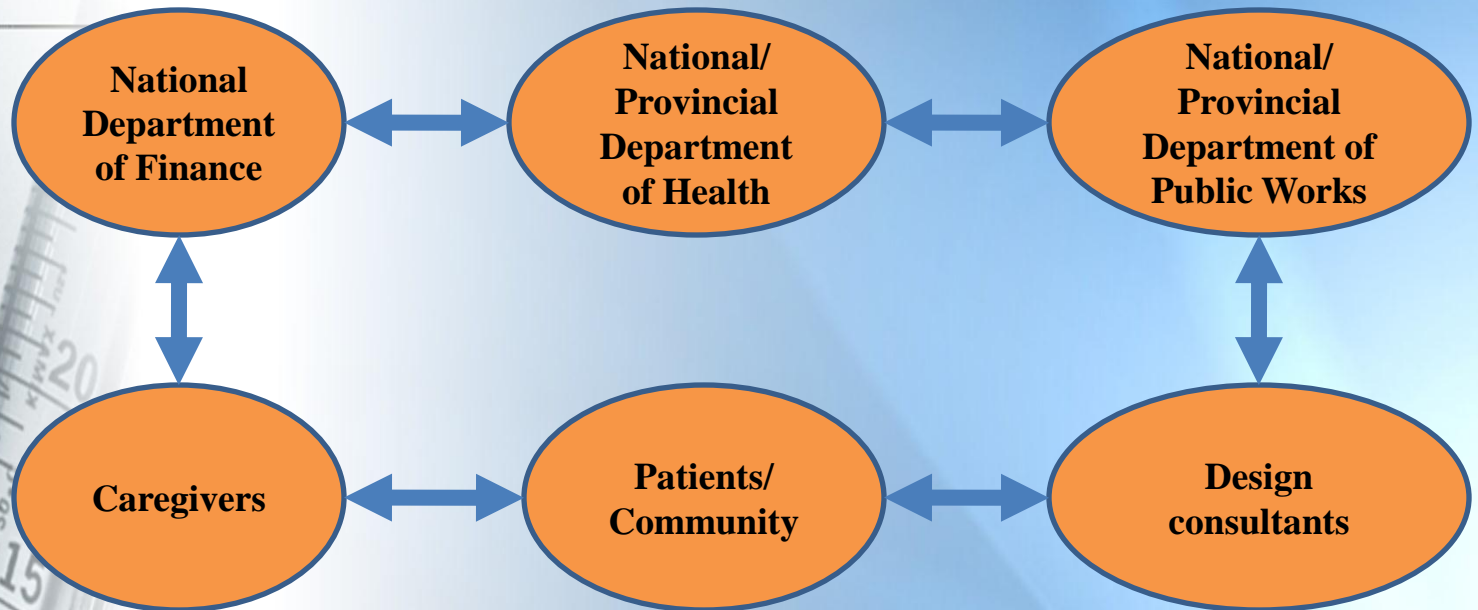
Questionnaires and Interviews



Floor Plan Analysis; Observational Studies; Behavioural Mapping; Hierarchical Task Analysis and Link Analysis



Stakeholders





Results

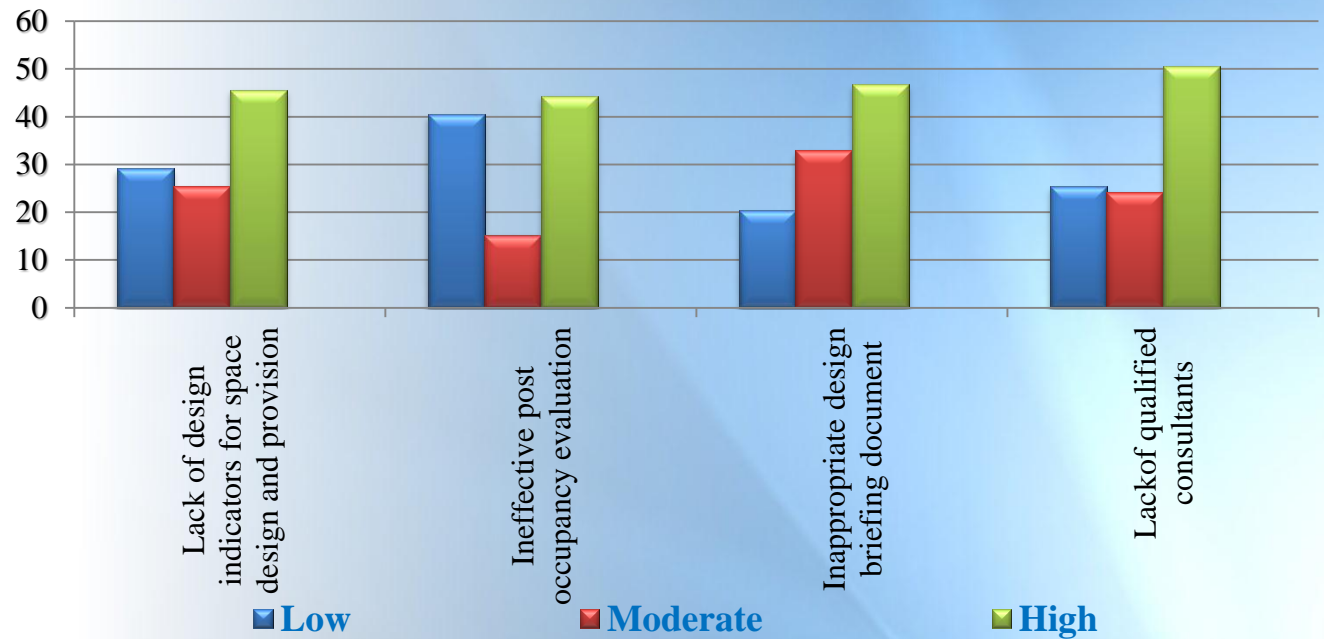
•Obstacles identified by consultants limiting compliance to DGs:

Methodology:

- Questionnaires

Respondents:

- Consultants





Results

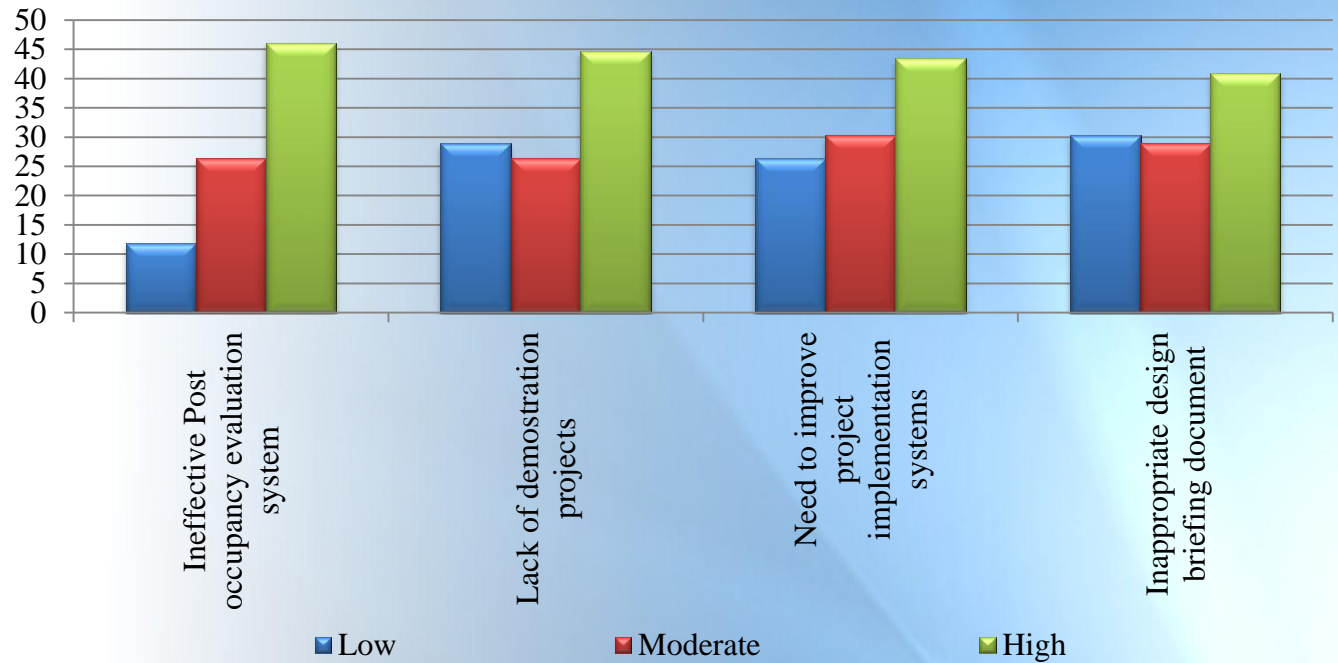
•Obstacles identified by staff limiting compliance to DGs :

Methodology:

- Questionnaires

Respondents:

- Staff





Methodology:

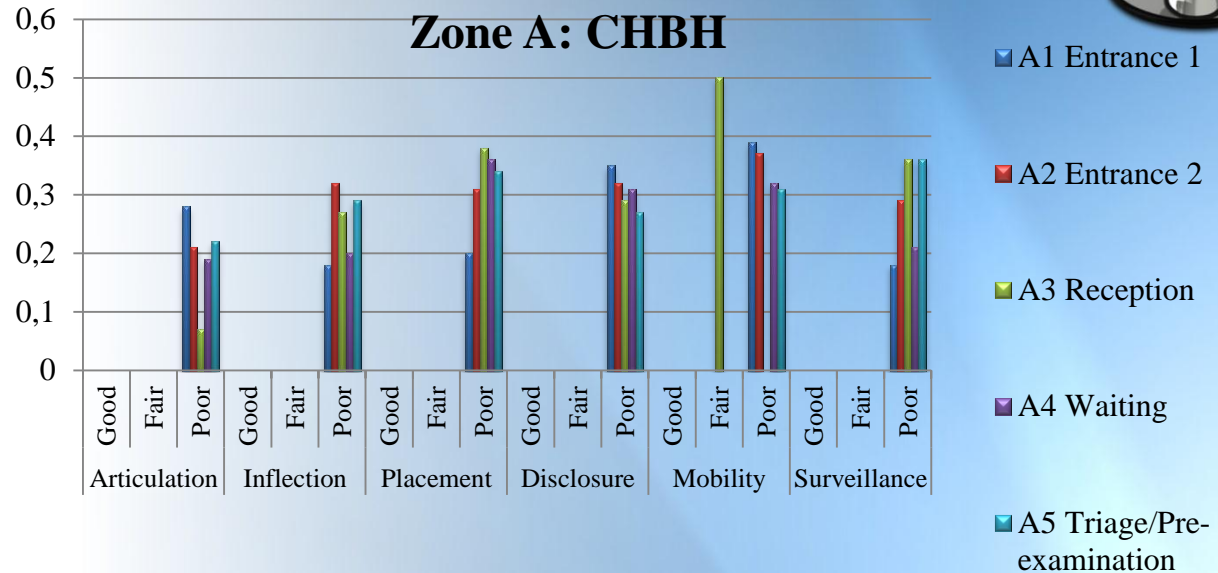
- Floor plan analysis

Study Zones:

1. Zone A- entrance and receptions;
2. Zone B: treatment areas;
3. Zone C- wards and in- patient areas;
4. Zone D: support areas

[22]

Results



Example of analysis done on an A&E zone showing design quality indicators considered





Results

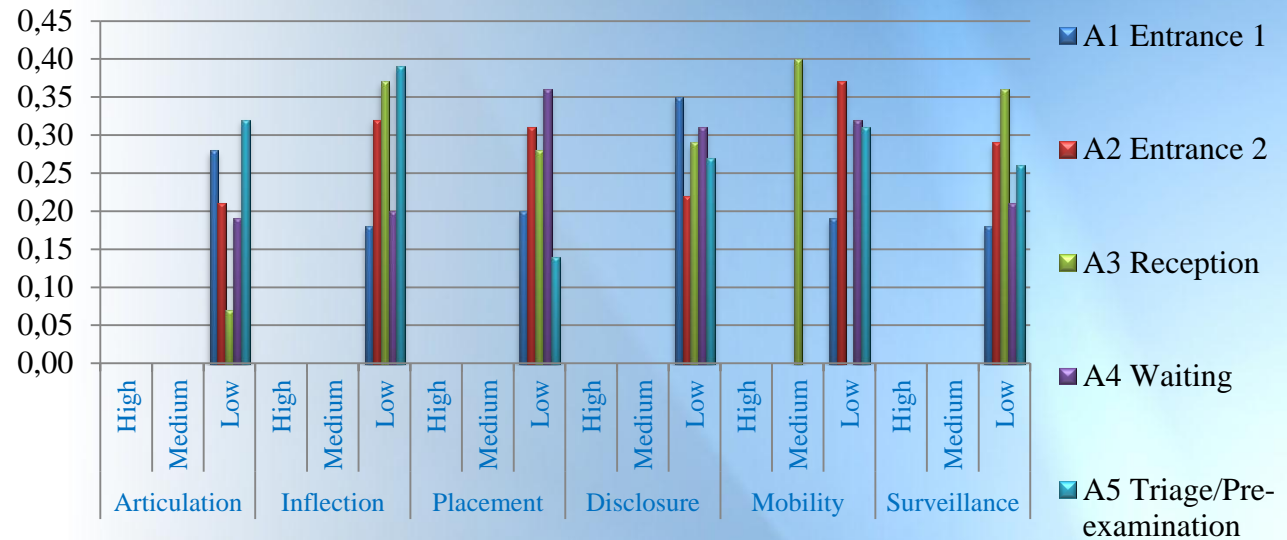
Zone A: Pretoria Academic Hospital

Methodology:

- Floor plan analysis

Study Zones:

1. Zone A- entrance and receptions;
2. Zone B: treatment areas;
3. Zone C- wards and in- patient areas;
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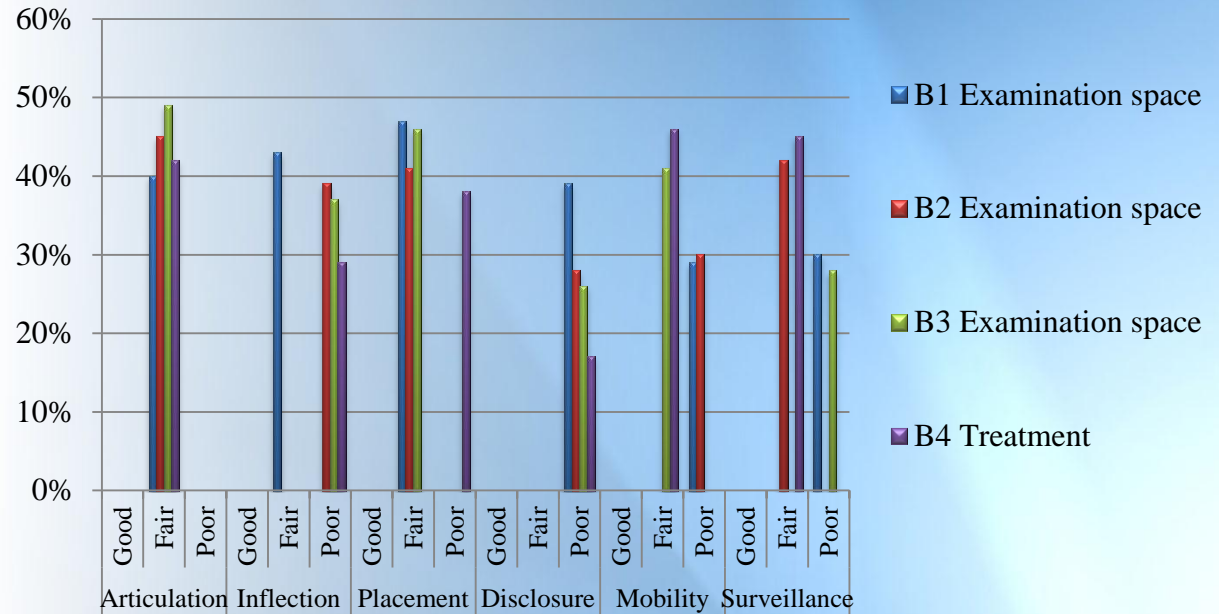


Example of analysis done on an A&E zone showing design quality indicators considered



Results

Zone B: CHBH



Methodology:

- Floor plan analysis

Study Zones:

1. Zone A- entrance and receptions;
2. Zone B: treatment areas;
3. Zone C- wards and in- patient areas;
4. Zone D: support areas

Example of analysis done on an A&E zone showing design quality indicators considered



Results

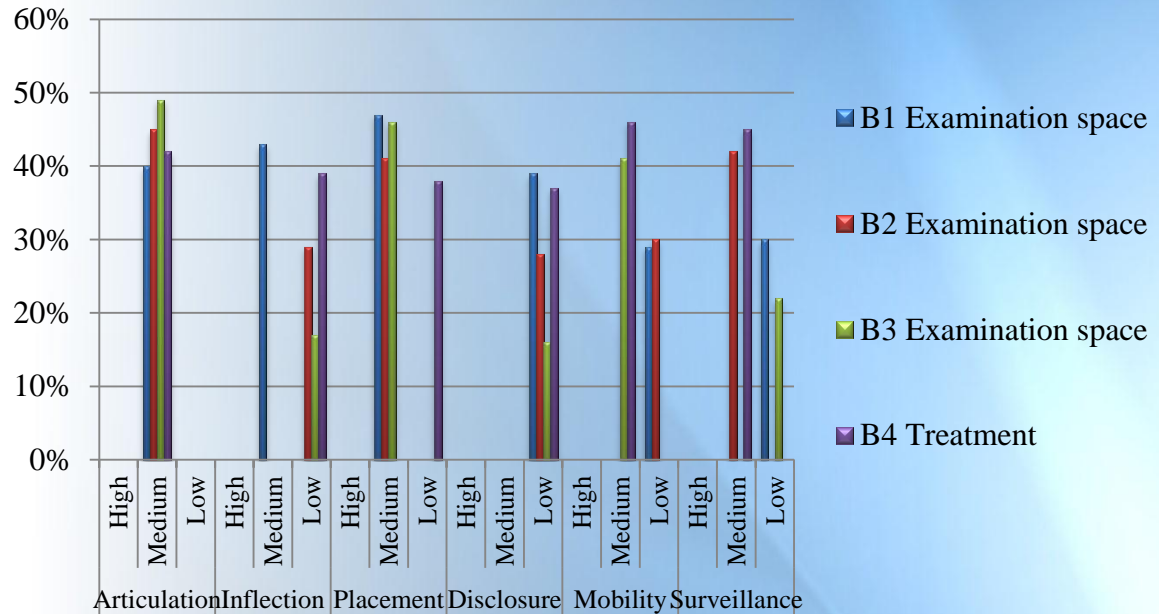
Methodology:

- Floor plan analysis

Study Zones:

1. Zone A- entrance and receptions;
2. Zone B: treatment areas;
3. Zone C- wards and in- patient areas;
4. Zone D: support areas

Zone B: Pretoria Academic Hospital



Example of analysis done on an A&E zone showing design quality indicators considered



Findings



DGAEF as a medium of communication:

- *Formulate strategies to improve information and communication systems*
- *Commit to developing research-based benchmarking tools for evaluating the project development process*



Findings



DGAEF as a tool for effective and efficient use of resources:

- *Base the space design programme on qualitative and quantitative data obtained through research*
- *Use multipurpose rooms for all A&E operations*



Findings

DGAEF as a medium for participatory process:

- *Encourage the use of participatory processes during all project stages*
- *Develop and use toolkits for monitoring and evaluating participation process*



Findings

DGAEF as a tool for technology innovation:

- *Use technology and innovation for project development process*
- *Provide adequate information in the DGAEF for flexibility and adaptability*



Findings

DGAEF as a means for institutional transformation:

- *Focus DGAEF on project vision/ goals*
- *Incorporate evaluation tools in the DGAEF*



Findings



DGAEF as a tool for standardisation of project development process:

- *Standardize A&E project development processes*
- *Provide generic guidance in the DGAEF to facilitate the use of standard tools*



Conclusions

- **The update of DGAEF can improve access to adequate A&E facilities**
- **Update of DGAEF update should emphasise:**
 - *improved communication;*
 - *efficient and effective resource use*
 - *participatory design processes*
 - *use of technological innovation*
 - *institutional transformation*
 - *standardisation of the project development processes*



Reflections



- **Designing within a box may no longer deliver the comprehensive results needed to improve the quality of physical environment:**

“Hence, majority of the design decisions are made expeditiously based on previous experience without research”



Reflections (Cont ...)



- **The evidence from the two case studies shows that caregivers can perform their function of care to patients within the space provided which is quite acceptable:**

“physical environment around us can set our mood and also create challenging barriers” (Hamilton: 2009)



The End



Thank you!