



# Clinical strategy and performance overview

*Speaker: Gia Khurtsidze,  
Chief Clinical Officer*

**GHG Investor Day**

*Tbilisi, Georgia / 10 November 2017*

**[ghg.com.ge](http://ghg.com.ge)**



# Where we stand now and where are we going

## Our main challenges

X

**Lack of doctors & Nurses: quality and new generation**

X

**Quality of basic medical care**

X

**Lack of services**



## Our goals (medium term)

✓

**Knowledge and expertise advancement of our physicians and nurses through education and practical development**

✓

**Develop and implement quality management measures at a larger scale within our healthcare facilities**

✓

**Strengthen existing services and launch new ones**



**It is the first class leaders of our medical team that are driving the improvement of service quality and access to healthcare across the organisation**

## GHG Clinical department



### **GREGORY (GIA) KHURTSIDZE**

Saint John Hospital, North West Kaiser Permanente Division, Longview, WA and Huron Hospital, Cleveland, OH

### CLINICAL QUALITY



#### **NINO BUTSKHRIKIDZE**

Tbilisi Central University Hospital, was the coordinator of the emergency medicine project in Georgia

### MOTHER AND CHILD HEALTH



#### **DAVID TSIBADZE**

Jeanne de Flandre Hospital of Lille, Timone Marseille University Hospital, Purpan-Toulouse Pediatric Hospital Network in France

### PEDIATRIC CARDIAC SURGERY



#### **PAATA KALANDADZE**

Policlinico di Monza and Papa Giovanni XXIII hospital in Italy, Alder Hey Children's Hospital in Liverpool and the Royal Children's Hospital in Melbourne

### POSTGRADUATE EDUCATION



#### **EKA SEPERTELADZE**

Georgia Ministry of Labor, Health and Social Affairs, Head of Accreditation Department for postgraduate educational programs

### NURSING DEPARTMENT



#### **TAMAR DOWSE**

Princess Margaret hospital, Cardinal Health of Swindon, Project Officer at Salvation Army (all in the UK).

### CARDIAC SURGERY



#### **ZAZA KATSITADZE**

the University Hospital in Switzerland, the Regional Hospital in Tallinn, Estonia, the University Hospital of Geneva in Switzerland

### INTERNAL MEDICINE



#### **MARIKA TOIDZE**

Milan University Hospital, Weill Medical College of Cornell University in New York Presbyterian Hospital

### PATHOLOGY



#### **ALEXI BAIDOSHVILI**

VU Medical Centre in Amsterdam, President of International Academy of Pathology Georgian Division (IAP GD)

### CRITICAL CARE



#### **LEVAN SUKHISHVILI**

Schuchtermann Klinik in Germany, Jo Ann Medical Centre and Regional Hospital Sachkhere in Georgia

### LABORATORY



#### **NINO ABESADZE**

University Medical Centre Hamburg Eppendorf, Oncology and Hematology department for children

### NEUROLOGY



#### **ZAZA KATSARAVA**

Clinical Epidemiology at Harvard School of Public Health. Evangelical hospital in Unna; Professor of Neurology - University of Essen in Germany. Vice president of the European Headache Federation and member of the ESO East Project

### ONCOLOGY



#### **KOBA KIKNAVELIDZE**

The University Hospital of Mannheim in Germany. Scholar of the European Association of Urology



# Governance: Structure and Committee meetings



## Board

### Participants:

- Executives from stakeholder entities
- Board members
- GHG CEO's

### Objectives:

- Facilitate development of legal and financial agreements
- Foster collaboration between players
- Set strategic direction and outcome expectations

## Physician Leadership Group

### Participants:

- Clinical Department of HO
- Clinical committees
- Clinical working groups

### Objectives:

- Oversee systems development
- Determine strategic development
- Set targets for training and education
- Set evidence based standards for care
- Recommend outcome or goal metrics
- Track and measure achievements

## Hospital Advisory Group

### Participants:

- Clinical director
- Commercial director
- Department heads
- Charge nurse
- Quality officer
- Pharmacy

### Objectives:

- Care for patients
- Maintain systems
- Monitor execution of guidelines
- Monitor implementation of quality measures
- Ensure safe environment
- Improvement projects



# We are growing a new generation of doctors & nurses

## Challenge

### Lack of doctors & Nurses: quality and new generation

**Doctors:** Despite the high number of doctors available in Georgia, the average age of our doctors is c.50, they mostly come with Soviet medical education and we have a shortage of doctors in a number of areas.

**Nurses:** The World Health Organization recommends a nurse to doctor ratio of 4:1 for Georgia, compared to our current ratio of 0.9 nurses per doctor.

## What we are doing – update 2017

1

### GHG Residency Programs

- Evidence based medicine and western standards of care
- In 2016 - Residency programs in 20 specialties (*Pediatric Neurology, Pediatric Emergency Medicine, OBGYN, Anesthesia/Critical Care, Pediatrics, Pediatric gastroenterology, Neonatology, Pediatric Cardiology, Laboratory Medicine, Internal Medicine, Endocrinology, Pediatric Endocrinology and Radiology, General Surgery, Orthopedic Surgery, Neurosurgery, Pediatric General Surgery, Oncology, Radiation Oncology, Cardiac surgery - pending*)
- In 2017 four additional programs were added: *Pediatric nephrology, Cardiac surgery and Cardiology, Neurology*
- Total residency quotas - 263
- Residents enrolled - 122
- 122 vacant positions will be announced in December
- It takes on average 33 months to complete the program



Sourcing and expertise advancement of our physicians and nurses through education and practical development



# We are growing a new generation of doctors & nurses

## Challenge

### Lack of doctors & Nurses: quality and new generation

#### Doctors:

- High number of doctors with Soviet education
- Average age c.50
- Shortage in number of specialties

#### Nurses:

- The WHO recommends a nurse to doctor ratio of 4:1 for Georgia
- Current ratio of 0.9

## What we are doing – update 2017

2

### GHG Doctor Retraining Programs

1. Emergency Medicine
2. OBGYN
3. Internal Medicine
4. Neonatology
5. Pediatrics
6. Clinical Quality
7. Surgery - Mayo Trauma Workshop

PERIOD	2015	2016	9M17
NURSE	1,960	2,098	1,094
DOCTOR	1,720	1,842	1,590
<b>TOTAL</b>	<b>3,680</b>	<b>3,940</b>	<b>2,684</b>



Sourcing and expertise advancement of our physicians and nurses through education and practical development



# We are growing a new generation of doctors & nurses

## Challenge

### Lack of doctors & Nurses: quality and new generation

#### Doctors:

- High number of doctors with Soviet education
- Average age c.50
- Shortage in number of specialties

#### Nurses:

- The WHO recommends a nurse to doctor ratio of 4:1 for Georgia
- Current ratio of 0.9

## What we are doing - update 2017

3

### GHG Trainers of Trainers Program (ToT)

- In 2017, 85 of our employees completed Trainers of Trainers programs in these specialties:
  - Nursing General
  - Nursing Operational
  - Basics of Pediatric Critical Care
  - General Critical Care Basics

Training	Number of Trainees
NURSE	20
DOCTOR	65



Sourcing and expertise advancement of our physicians and nurses through education and practical development



# We are growing a new generation of doctors & nurses

## Challenge

### Lack of doctors & Nurses: quality and new generation

#### Doctors:

- High number of doctors with Soviet education
- Average age c.50
- Shortage in number of specialties

#### Nurses:

- The WHO recommends a nurse to doctor ratio of 4:1 for Georgia
- Current ratio of 0.9

## What we are doing - update 2017

4

### GHG Continuous Medical Education (CME)

- CME are conducted in seven specialties:
  - OBGYN
  - Pediatrics
  - Neonatology
  - Internal Medicine
  - Clinical quality
  - Emergency Medicine
  - Nurses
  - Lab
- 18 CME programs were conducted in 2017
- 1,038 doctors and 4,794 nurses engaged during 3 year period



Sourcing and expertise advancement of our physicians and nurses through education and practical development





# We build robust clinical quality management processes

## Challenge

### Research studies

---

- Poorly designed
- Sporadic
- Underpowered
- Low validity

## What we are doing – update 2017

1

### GHG Clinical Studies

---

Goals achieved so far

- Good Clinical Standards –training provider
- 60 clinical pharmacological phase 2&3 studies
- In 15 clinics
- 20 studies - In the process of initiation
- Major western pharmacological companies involved
- GEL 2 million annual payment



Develop and implement high quality medical studies at larger scale within our healthcare facilities



# We build robust clinical quality management processes

## Challenge

### Lack of clinical quality management practices on national level

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

2

### GHG Clinical Protocols

- Development and implementation - Ongoing process
- Evidence based medicine and western standards of care as a baseline.

Protocols approved in 2017

- Clinical - 14
- Nursing - 8
- Hospital performance SOPs - 19



Develop and implement quality management measures at a larger scale within our healthcare facilities



# We build robust clinical quality management processes

## Challenge

### Lack of clinical quality management practices on national level

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

3

### GHG Clinical Quality Framework Development

Goals achieved in referral hospitals:

- Quality control – 12 hospitals
- Risk management - 8 hospitals
- Safety -12 hospitals
- Infectious control - 12 hospitals
  - Hand hygiene surveillance -12 hospitals
  - Antibiotic stewardship -12 hospitals



Develop and implement quality management measures at a larger scale within our healthcare facilities



# We build robust clinical quality management processes

## Challenge

### Lack of clinical quality management practices on national level

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

3/1

### GHG Clinical Quality Monitoring

---

Clinical KPI monitoring implemented in all referral and medium size hospitals

- ICU (47 indicators)
- PICU (19 indicators)
- NICU (20 indicators)



Develop and implement quality management measures at a larger scale within our healthcare facilities



# We build robust clinical quality management processes

## Challenge

### **Lack of clinical quality management practices on national level**

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

3/2

### **GHG Risk Management**

#### Goals achieved in 2017

- Quality data analysis - 13 ICUs
- Penalty analysis – 4 reports performed
- Claims/case reviews - 99
- M and M committees in head office - 19
- Infection control committees in head office - 3
- Clinical audit - 7
- Clinical risk assessment meetings in 21 hospitals



**Develop and implement quality management measures at a larger scale within our healthcare facilities**



# We build robust clinical quality management processes

## Challenge

### **Lack of clinical quality management practices on national level**

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

3/3

### **GHG Safety**

#### Polices and Standards created in 2017

- Personal safety - 2
- Occupational safety - 1
- Hazard management - being developed
- Radiation safety - 2
- Biosafety - standard created
- Hazard management - under creation
- Central pharmacy - Facility standard created
- Hospital construction and remodeling standards - 11 projects



**Develop and implement quality management measures at a larger scale within our healthcare facilities**



# We build robust clinical quality management processes

## Challenge

### Lack of clinical quality management practices on national level

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

3/4

### GHG Infection Control and Prevention

- Prevention surveillance - 10 audits
- Antibiotic stewardship
  - Position created for surveillance
  - SOP, 1 program, 1 audit done
- Hand hygiene surveillance - 15 monitoring projects
  - 90% rate of hand washing rate in nurses
- Standardization SOPs and creation of manual – 7 SOPs
- Upgrade of supportive units - 18 audits, 8 project reviews
- Infection control risk assessment (ICRA) – 16 audits
- TB prevention – Program, SOPs & training curriculum done
- Infection control and prevention meetings in HO - 3



Develop and implement quality management measures at a larger scale within our healthcare facilities



# We build robust clinical quality management processes

## Challenge

### **Lack of clinical quality management practices on national level**

---

- Quality Management since the Soviet era still in the early state of development
- No official / comprehensive framework of protocols or treatment guideline available on National level

## What we are doing – update 2017

4

### **GHG Quality Trainings Done in 2017**

---

- Infection control and prevention - 80
  - 5 in collaboration with USA CDC
- TB prevention – 5
- Data base management – 23
- Case root cause analysis – 3
- Quality management – 3
- Research - 1



**Develop and implement quality management measures at a larger scale within our healthcare facilities**





# Service gaps in Georgia



## OUTPATIENT CARE

Outpatient encounters in Georgia are low at 3.9 a year, compared to the CIS average of 8.9 and European Region countries of 7.5, according to WHO



## LABORATORY SERVICES

- Number of lab tests are still sent to the laboratories abroad
- Pathology service is outdated and 30 years behind European level



## CANCER

- Very low reported incidence levels
- Malignant neoplasms incidence rate in Georgia is 140.3, compared to 543.7 in EU, and the detection of over 30% of malignant neoplasms occur at stage IV



## MATERNITY CARE

- Highest number of caesarean among the former Soviet Union republics – 41% of the total number of all deliveries in 2014
- Maternal mortality ratio per live births three-times higher in Georgia than in the European Region.



## EMERGENCY CARE

- Emergency units simply did not exist in Georgia until several years ago
- hospitals had to staff emergency units with over 15 different specialists, which decreased the quality and efficiency of the ER



## NEONATOLOGY

neonatal mortality was 60-80% of under five mortality during previous years, well above the 43% global average



## PEDIATRICS

- Biggest share in medical services import is The culture of regular visits to the doctor at an early pediatric age - as a favorable heritage from Soviet-times



## PEDIATRIC CARDIO SURGERY

For almost 15 years, there was only one center in Georgia that provided cardiology and cardiosurgery services for children



## CARDIOLOGY

- hospitalization rate per 100,000 population that was 1,647 in 2014, which is two-fold less than in CIS and European Union countries.
- cardiovascular diseases represent 16.5% of deaths



## CRITICAL CARE

- The lack of quality of care in a number of areas in the Georgian healthcare system puts strain on critical care units



## 320 bed Multi Specialty Hospital ready to open in January of 2018

- Nine operating rooms
- Hybrid operating room
- 53 bed multi profile ICU
- 26 bed ER



### List of services

- ✓ Oncology/Hematology
- ✓ Orthopedy
- ✓ Multi segmented ICU
- ✓ ER
- ✓ Full spectrum of medical services
- ✓ Telemedicine
- ✓ Diagnostics
- ✓ Cardio surgery
- ✓ Vascular surgery
- ✓ Neurosurgery
- ✓ General surgery
- ✓ Minimal invasive surgical center
- ✓ Gynecology
- ✓ Ophthalmology



## Main hub for clinical laboratory diagnostics

- 4000 sq. m
- Hematology, Biochemistry, Microbiology
- Pathology department
- JCI accreditation planned







## 332 bed Multi Specialty Adult and Pediatric Hospital launched in November



### List of services already launched

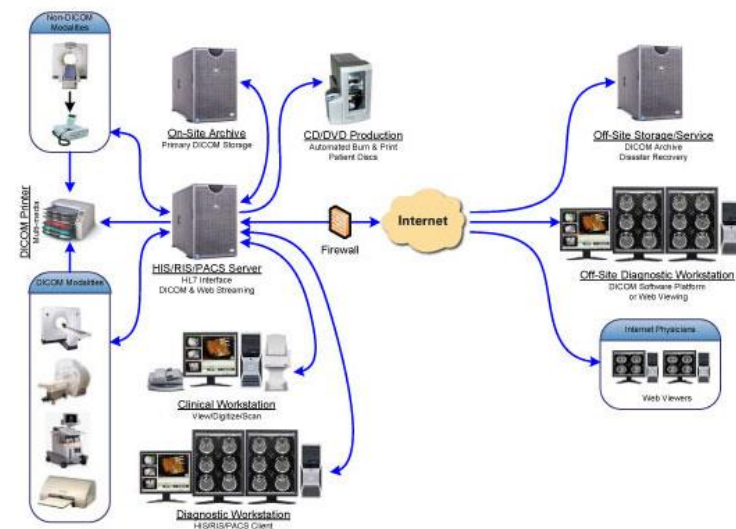
- Cardio surgery
- Vascular surgery
- Neurosurgery
- General surgery
- Nephrology
- Gynecology
- Obstetrics
- Orthopedy
- Multi segmented ICU
- ER
- Full spectrum of medical services
- Rehabilitation
- Diagnostics

### To be Launched soon

- Psychiatry unit
- Oncology/Hematology
- Palliative medicine
- Pain center
- Transplantology



- **Electronic Medical Records (EMR)** – Construction is in progress
- **Laboratory Information System (LIS)** – Ready for integration
- **Radiology Information System (RIS)** – Ready for integration
- **Picture Archiving and Communication System (PACS)** – In the process of announcing tender
- **Digital Pathology System** – Part of pathology department





# We fill healthcare service gaps in Georgia

## We launched oncology center

### Was

Suboptimal due to outdated technology

Soviet era staff with poor access to new western standards of care

Significant outflow of patients abroad

### We achieved

- Launched service in Kutaisi, July 2015
  - So far 756 patients treated - average revenue of GEL c.4,000
  - Staff reinforced with Georgian repatriate physician team practicing in the Europe for 2 decades
  - Standard of care is approaching European guidelines
  - Second linear accelerator in Kutaisi installed
  - Expansion of existing unit done ( with potential to double the flow)
- Hematology unit up and running for BMT at HTMC hospital,
- 13 transplantations were done so far
- Pediatric Hemato-Oncology Unit renovated at Iashvili Pediatric Tertiary Referral Hospital

### Our plans

- Further development of Pediatric Hemato-Oncology
- Palliative care unit
- Pain control center
- Home care nurse service



Strengthen existing services and launch new ones



# We fill healthcare service gaps in Georgia



Pictured: Renovated Pediatric Hemato-Oncology Unit at Iashvili Pediatric Tertiary Referral Hospital



# We fill healthcare service gaps in Georgia

## We launched pediatric cardio surgery

### Was

Only one center in Georgia

### We achieved

- Launched service in August 2015
- Initiated with multi national cardio surgical teams (Italy, Germany, China, Israel) with hands on training for local team
- 108 surgeries – at average revenue of GEL c.15,000
- 110 percutaneous procedures
- Strong service quality, with low mortality (3)
- Since October 2016 the local team performs moderate complexity surgeries

### Our plans

- Targeting - 250 surgeries per year
- Cardiac surgery residency
- To have complete Georgian team perform full gamut of surgeries



Strengthen existing services and launch new ones





## First in Georgia to perform thrombolysis for CVA

### Was

No treatment  
available

### We achieved

- Launched service in 2014
- Was initiated by Zaza Katsarava MD, PhD.  
Chief of Neurology Department  
Professor of Neurology  
Medical Faculty  
University of Essen  
GERMANY
- 14 treatments so far with excellent outcomes

### Our plans

- Currently in negotiation with MOH to include this treatment in paid services
- Establish treatment centers in at least 1 regional hospital
- Create Stroke Center



Strengthen existing services and launch  
new ones



## We launched liver transplantation

### Was

Only 2 centers in Georgia with successful cases

### We achieved

- Launched service in December 2014
- Assisted by multi national surgical teams (Italy and India) providing practical training to local team
- Completed 18 successful surgeries at average revenue of GEL c.110,000
- Excellent performance record - 4 mortality
- International transplant patients

### Our plans

- Expanding the department, targeting 20 surgeries per year
- Consolidate transplant program (Liver, Kidney – pediatric and adult) in Tbilisi
- Start transplant residency



Strengthen existing services and launch new ones



# We fill healthcare service gaps in Georgia

Picture 1: Liver transplant patients at GHG



Picture 2: Liver transplant patients at GHG





# Where we stand now and where are we going

## Our main challenges

X

**Lack of doctors & Nurses:  
quality and new generation**

X

**Quality of basic medical care**

X

**Lack of services**

## What we achieved



- 5,150 doc's /5,150 nurses retrained
- 85 ToTs developed
- 263 residents in 24 specialties
- 2 Major hospitals constructed



**Quality control framework up and  
running**



**More than 90 new services were  
launched over last two years**

**More than 10 new services to be  
launched in 4Q17**

## Goal



**Complete first round of staff  
retraining by 2020**



**Complete quality management  
framework implementation.**

**Receive JCI accreditation on some  
of our major referral hospitals in  
coming years**



**Continue to launch new services**

**Capture patient flow export.**

**QUESTIONS?**

**GHG Investor Day**

*Tbilisi, Georgia / 10 November 2017*

**[ghg.com.ge](http://ghg.com.ge)**



---

*This presentation contains forward-looking statements, including, but not limited to, statements concerning expectations, projections, objectives, targets, goals, strategies, future events, future revenues or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, competitive strengths and weaknesses, plans or goals relating to financial position and future operations and development. Although Georgia Healthcare Group PLC believes that the expectations and opinions reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations and opinions will prove to have been correct. By their nature, these forward-looking statements are subject to a number of known and unknown risks, uncertainties and contingencies, and actual results and events could differ materially from those currently being anticipated as reflected in such statements. Important factors that could cause actual results to differ materially from those expressed or implied in forward-looking statements, certain of which are beyond our control, include, among other things: business integration risk; compliance risk; recruitment and retention of skilled medical practitioners risk; clinical risk; concentration of revenue and the Universal Healthcare Programme; currency and macroeconomic; information technology and operational risk; regional tensions and political risk; and other key factors that we have indicated could adversely affect our business and financial performance, which are contained elsewhere in this presentation and in our past and future filings and reports, including the 'Principal Risks and Uncertainties' included in Georgia Healthcare Group PLC's Annual Report and Accounts 2016 and in its Half Year 2017 results announcement. No part of this presentation constitutes, or shall be taken to constitute, an invitation or inducement to invest in Georgia Healthcare Group PLC or any other entity, and must not be relied upon in any way in connection with any investment decision. Georgia Healthcare Group PLC undertakes no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent legally required. Nothing in this presentation should be construed as a profit forecast.*