

Organization of the neonatal health care-Macedonian model

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0 25 50 km
0 25 50 mi

Federal Republic of Yugoslavia

Bulgaria

Kumanovo

Tetovo  **Skopje**

Gostivar

Veles Stip

Kičevo

Strumica

Prilep

Lake Doiran

Bitola

Lake Ohrid

Lake Prespa

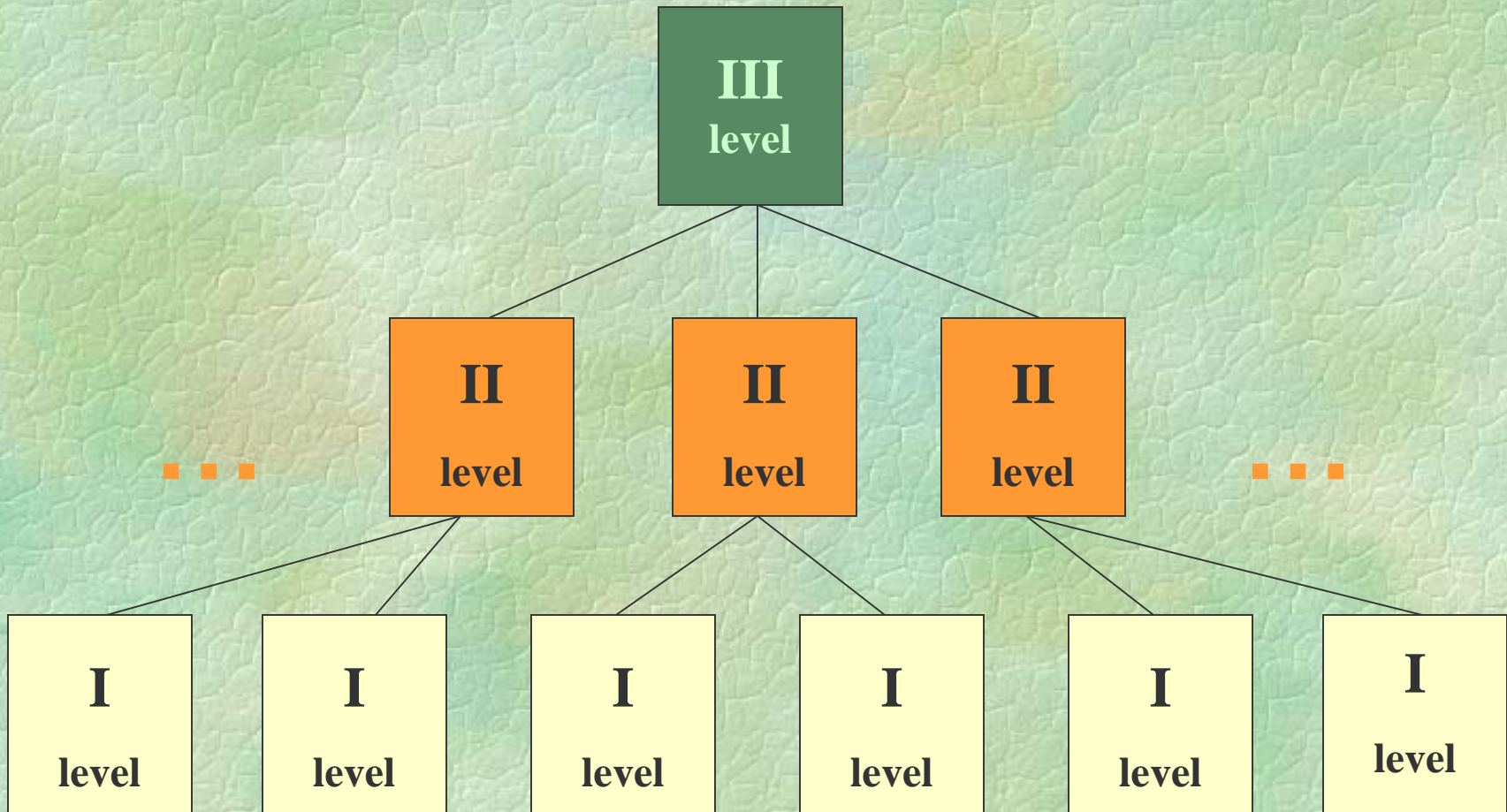
Greece

Aegean Sea

Albania



Regionalization of the hospital neonatal health care



First level of hospital health care

Well-newborn nurseries provide a basic level of newborn care to infants at low risk:

- **capable to perform neonatal resuscitation at every delivery**
- **can evaluate and provide routine postnatal care of healthy newborn infants**
- **can stabilize and care for near-term infants (35–37 weeks' gestation) who remain physiologically stable**
- **can stabilize newborn infants who are less than 35 weeks' gestation or ill until they can be transferred to a facility at which specialty neonatal care is provided.**
- **can ensure phototherapy**

Secondary level of health care

Care for infants with corrected gestational age > 34 weeks or weight greater than 1800 g who have mild illness expected to resolve quickly;

- **Ability to initiate and maintain intravenous access and medications;**
- **Gavage feeding; and**
- **Oxygen therapy with oxygen saturation monitoring**

Level 2a

- **Care of infants with a corrected gestational age of 32 weeks or greater or a weight of 1500 g or greater who are moderately ill with problems expected to resolve quickly or who are convalescing after intensive care;**
- **Peripheral intravenous infusions**
- **Resuscitation and stabilization of ill infants before transfer to an appropriate care facility;**
- **oxygen therapy with oxygen saturation monitoring**

Postnatal procedures within the NICU's (Skopje)

- **Care of infants of all gestational ages and weights**
- **Stabilization of the newborn**
- **Oxygen therapy and assisted ventilation**
- **Correction of the homeostatic disturbances**
- **Continuous vital parameters monitoring**
- **Ultrasonography and radiography**
- **Total parenteral nutrition**
- **Exchange transfusion**
- **All other examinations and interventions**
- **Immediate access to the full range of subspecialty consultants (neonatal surgery, cardiologist, neurologist, ophthalmologist, etc**

Additional services:

- **Communication with a social worker**
- **Ophthalmologic examination of the premature infants according to the Guidelines of the AAP (American Academy of Pediatrics), AAO (American Academy of Ophthalmology) and AAPOS (American Association for Pediatric Ophthalmology and Strabismus)**
- **Referral of the risk newborns to the center for follow up and early intervention**

Number of facilities

- Tertiary level of health care
 - Gynecology and obstetric Clinic-transport in utero
 - Children's hospital-transport ex utero
- Secondary level of health care
 - All maternity units within the General hospitals
 - 17 public
 - 3 private (one of them possessing small NICU)
- Primary level of hospital health care
 - 12 public units (birth centers)
- Primary health care (outpatient)
 - Many outpatient care facilities

Advantages of the approach

- ❖ To ensure reasonable geographical coverage
- ❖ Tertiary level units to sustain the clinical skills
- ❖ To ensure high utility of the tertiary care beds
- ❖ To make the balance between the good quality of care, costs, risks and benefits

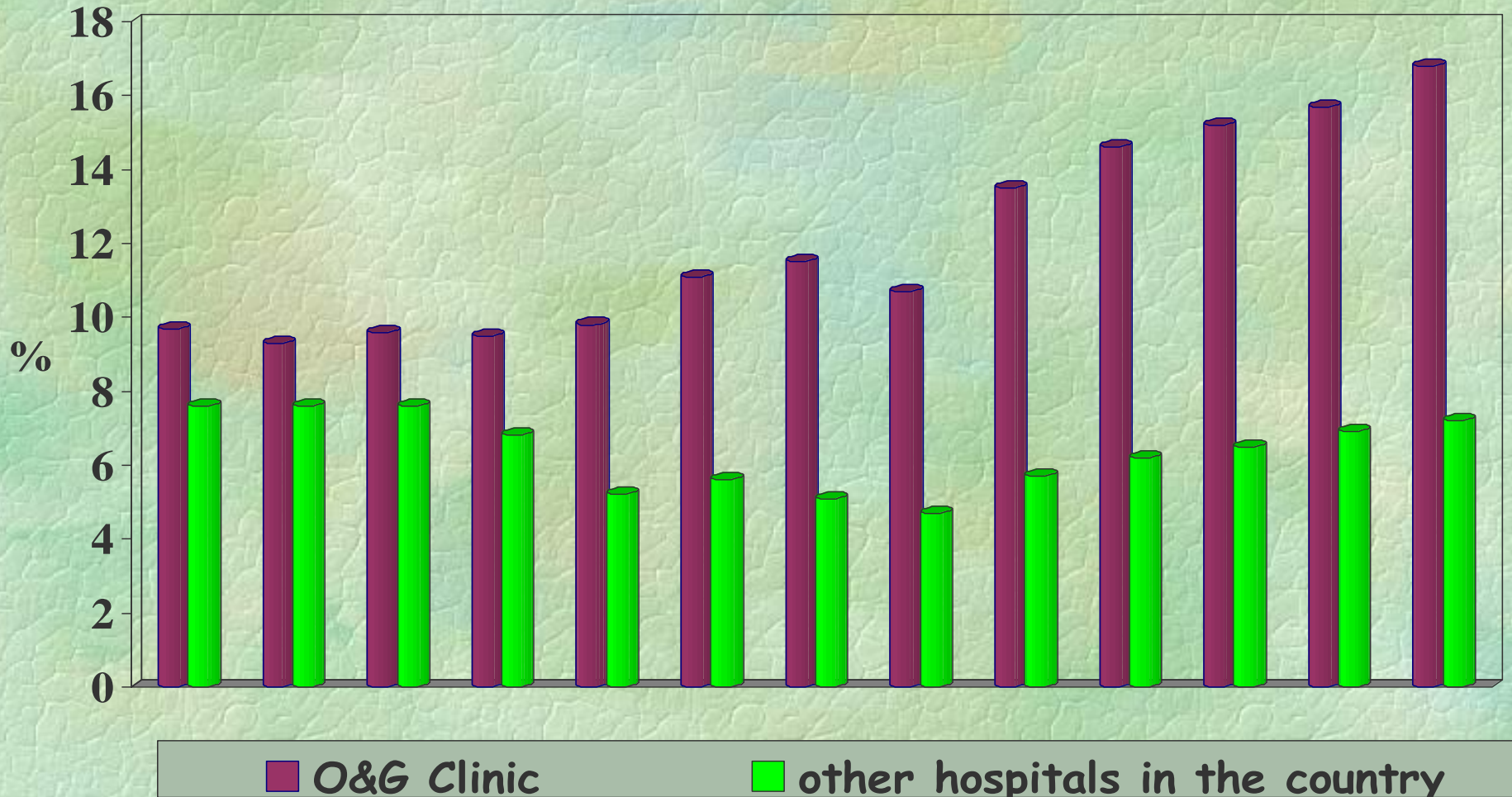




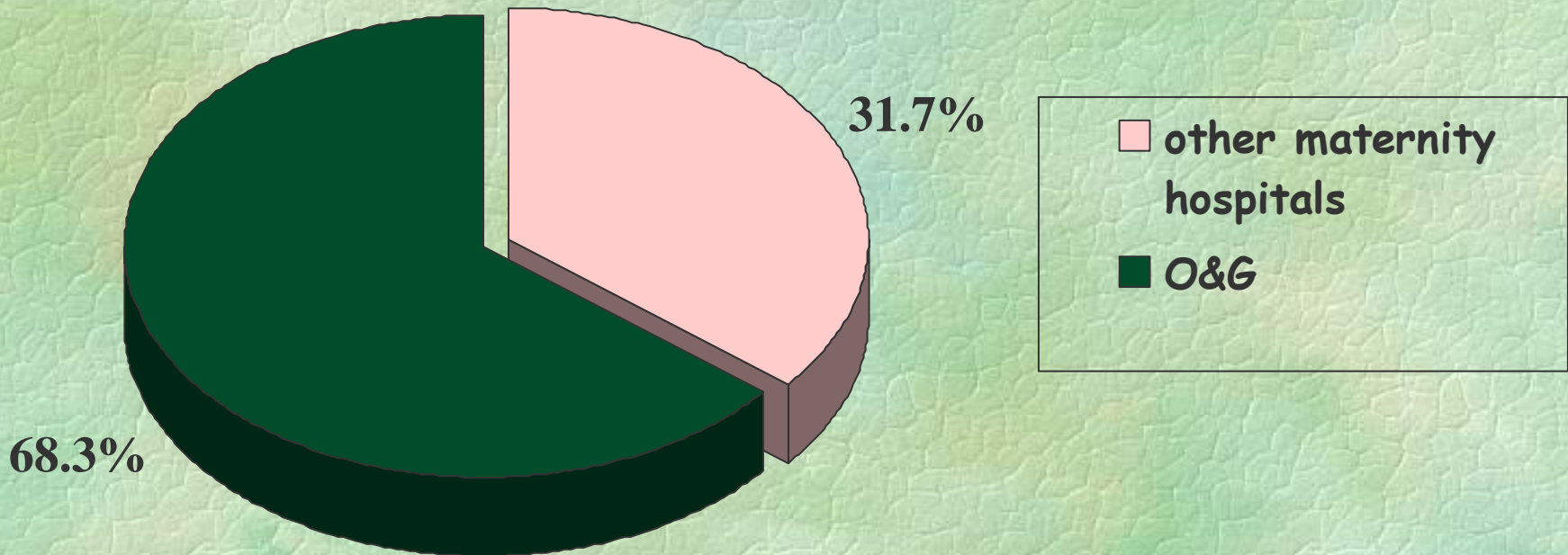
What are the strengths in the country?

- o Implemented regionalization of the neonatal health care
- o Improvement of the "transport in utero" of high risk pregnancies in Academic Gynecology and obstetric clinic (tertiary level of care)
- o Sufficient doctoral staff
- o Introduced majority of intensive investigations and therapeutic procedures
- o Positive approach by the authorities towards the maternal and neonatal health
- o Readiness for change management
- o Several ongoing Projects

Premature live births



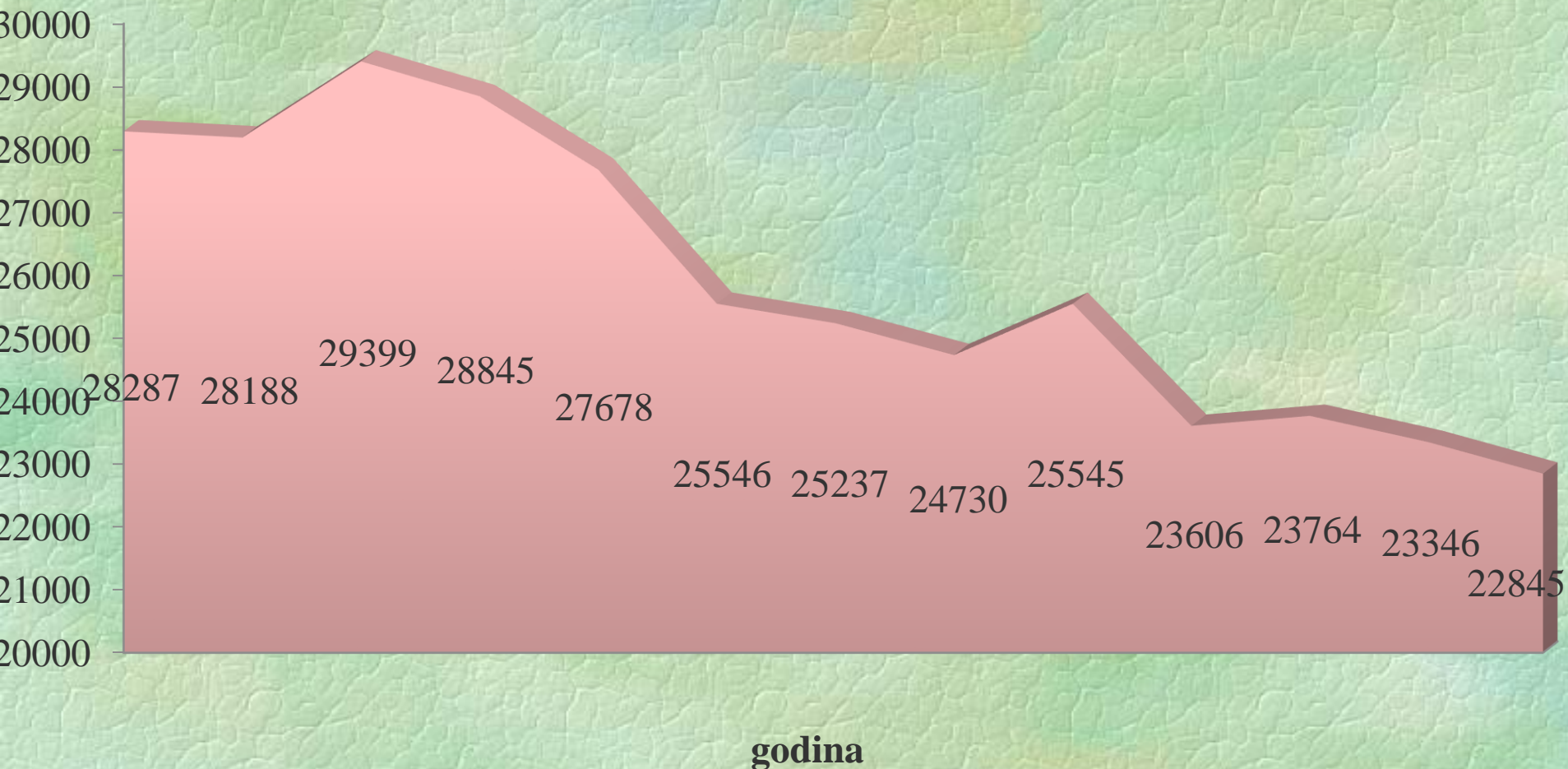
Low birth weight newborns (below 1500 g)



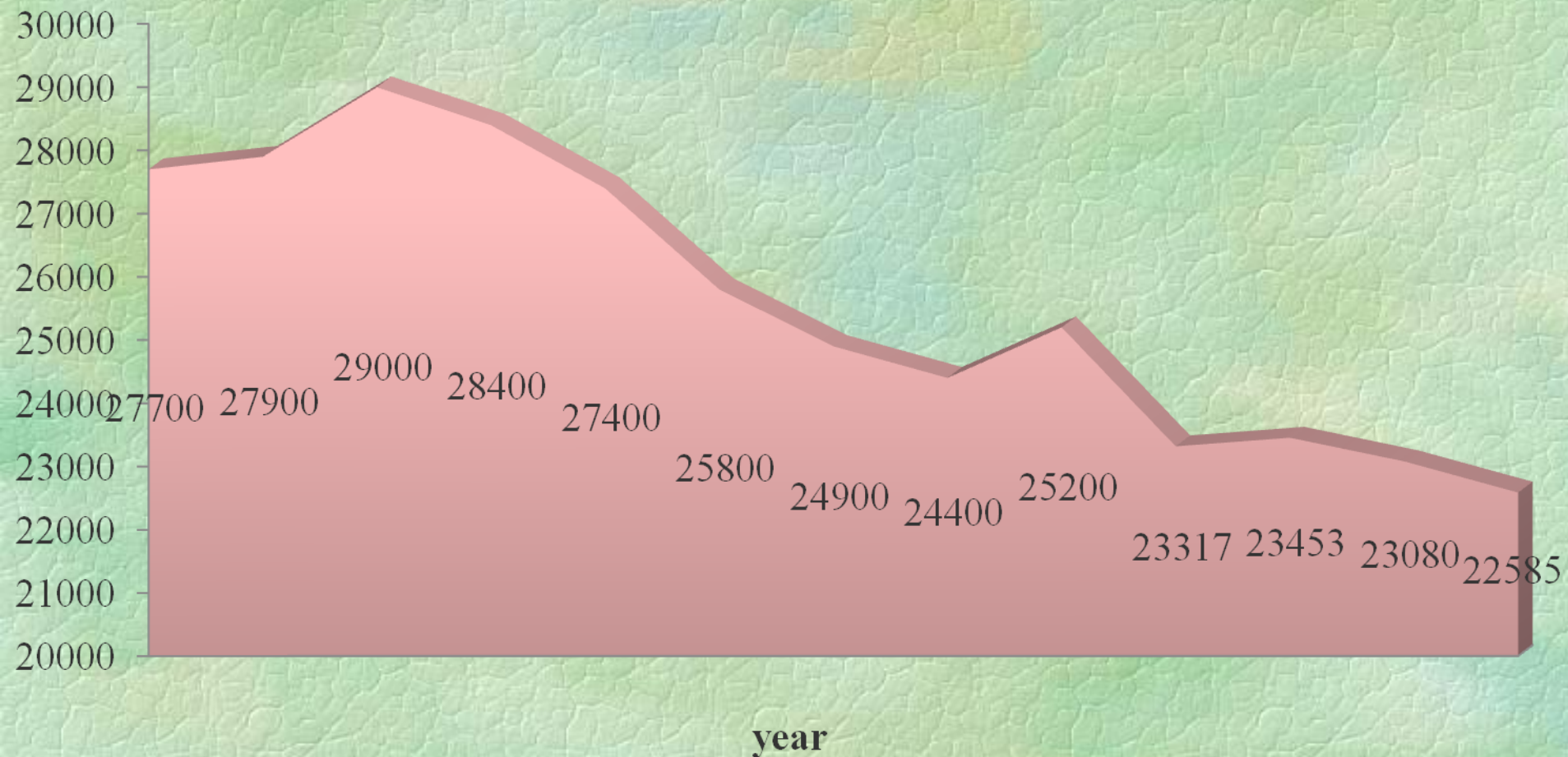
What are the weaknesses?

- High rates of neonatal and perinatal mortality
- Non-standardized education for the medical staff (successful attempts in Continuous medical education for the neonatal teams)
- Lack of midwives and nurses
- Implementation of the Guidelines-beginning
- Insufficient computer literacy and internet use
- Weak system of data collection

Number of births in Macedonia

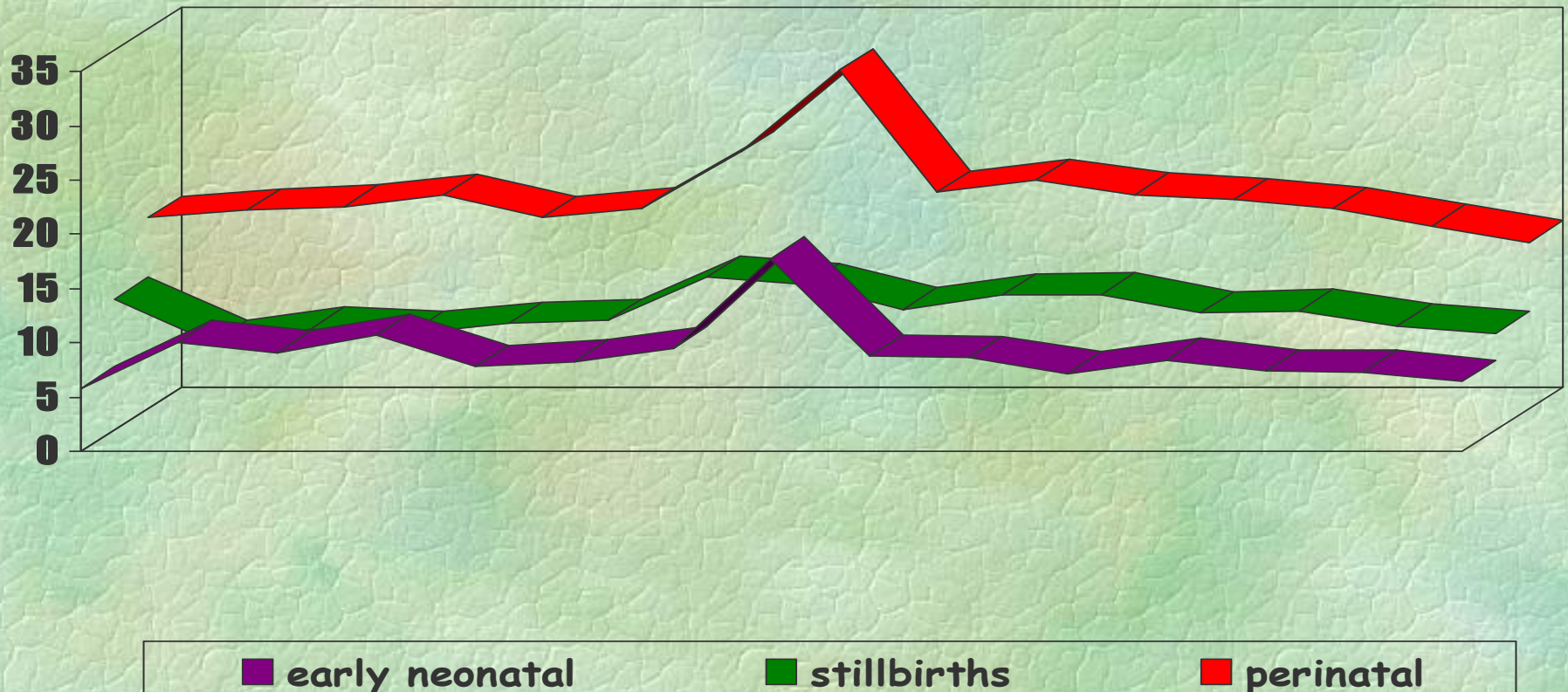


Number of live births in Macedonia



Perinatal mortality rates in the country

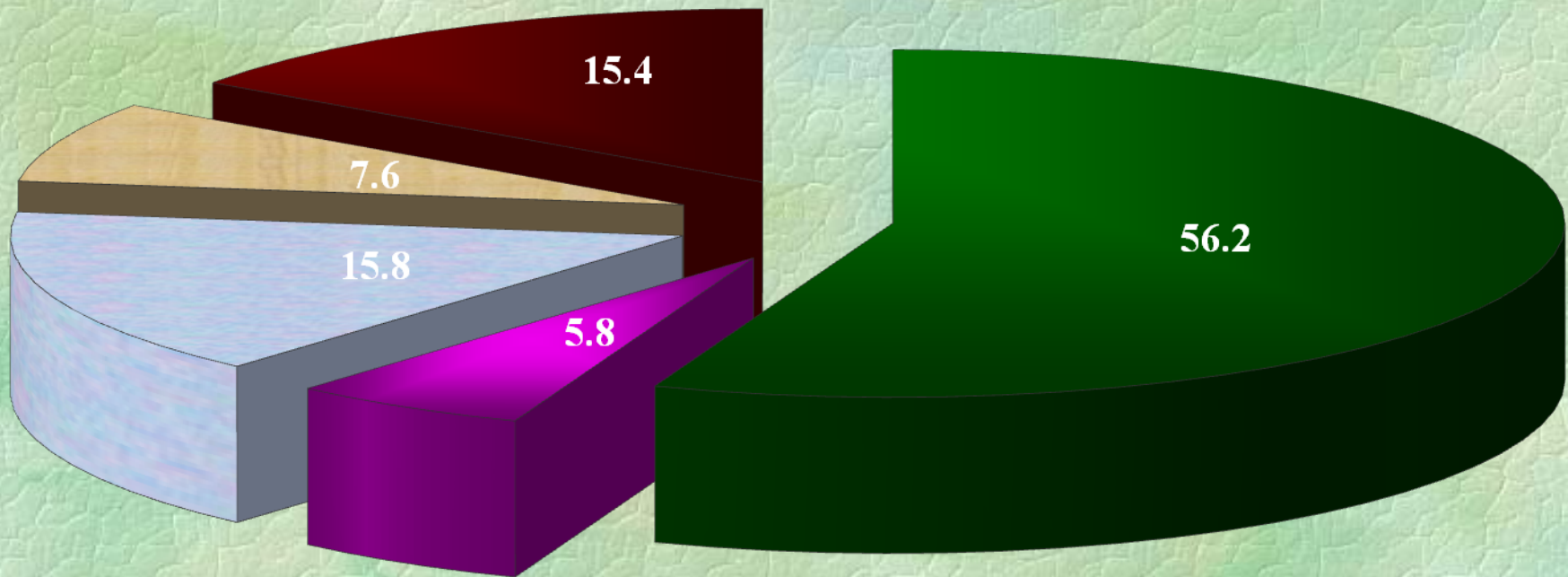
Source: Eurostat



Main causes of early neonatal death

- Respiratory distress syndrome
- Prematurity
- Congenital anomalies
- Infections
- Other

Main causes of early neonatal death



■ immaturity

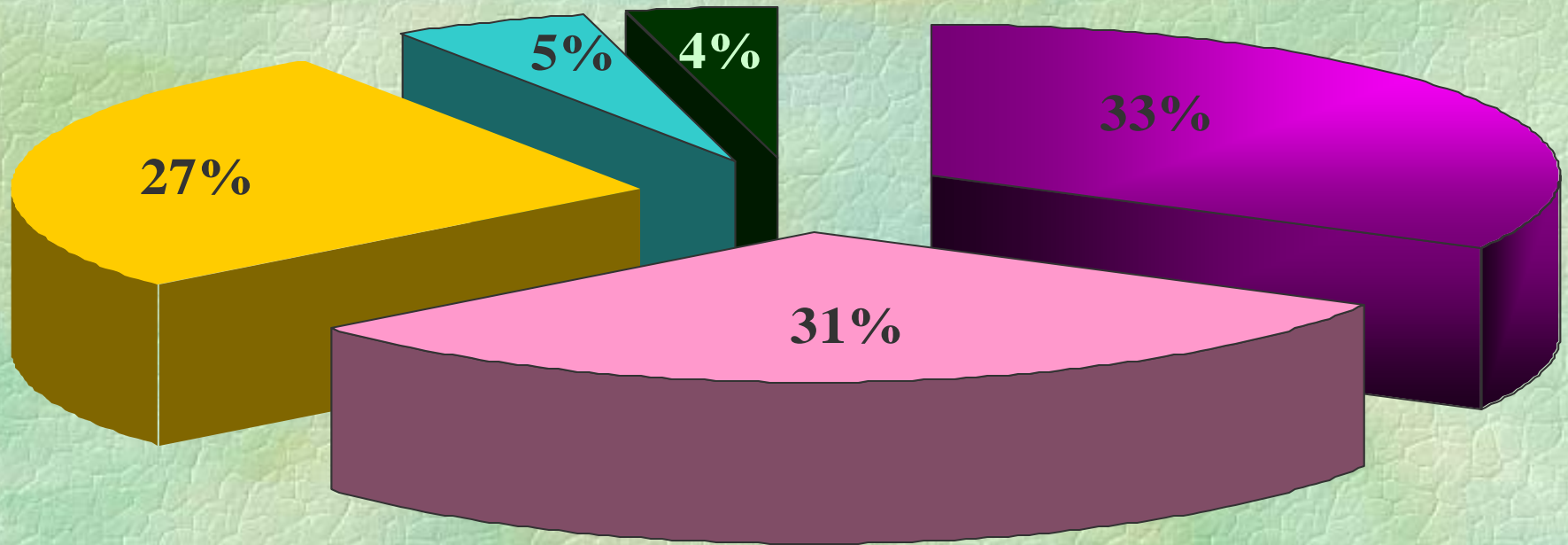
■ birth asphyxia

■ congenital anomalies

■ infections

■ other

Age of the died newborns



■ first 12 h

■ 13-24 h

■ 25-48 h

■ 49-72 h

■ 3-6 days

Brief information about some implemented Project activities

- **Baby Friendly Hospital Initiative (UNICEF/WHO)-Certified 29/32 maternity hospitals/Units. More than 84% of the newborns are born in BF conditions**
- **Improving neonatal care (MoH and the World Bank). Organizational and structural changes in maternity hospitals, CME, Equipment supply**
- **Early detection and intervention for the infants of high risk (MoH and GTZ). Developed several Centers for follow up and early intervention for the risk infants and children with special needs**

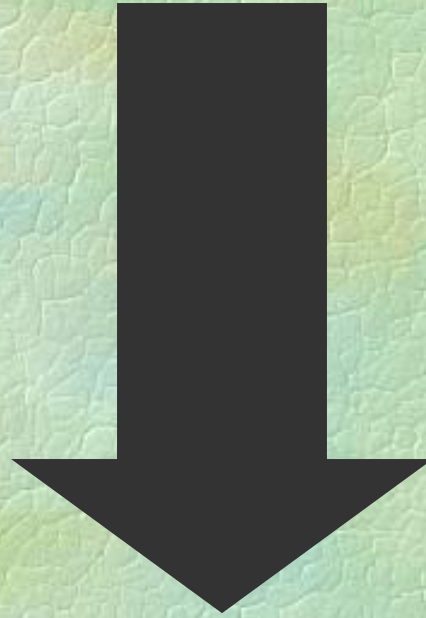


Further needs, tasks and activities

- Health promotion
- Improving the data collection system
- Improving the transport “in utero”
- Improving the implementation of evidence based guidelines)
- Sustaining the ten standards for Baby friendly hospital Initiative
- Continuous medical education for the medical staff working with neonates

All activities are directed

towards



- Reduction of the neonatal/perinatal death rates
- Ensuring healthy and happy offspring

