

## **Appendix 2: Variables definition and management**

We categorized mothers' employment status based on their self-reported occupation. Farmers, homemakers, or students were classified as unemployed, while those working in the government, private sector, or owning a business were considered employed. For maternal age, we categorized it into three levels, of which two represent a high-risk pregnancy: below 20 (teenage pregnancy) and above 35 years (later pregnancy) (1). However, due to few observations of teenage pregnancies, we merged these two extreme-age categories. Similarly, due to a few non-schooled mothers, educational status was less or equal to and above primary education.

We defined parity as the number of children previously born to a woman, excluding miscarriages or abortions, but including stillbirths and fetal deaths. It was categorized into first-time mothers (primiparous), pauci-parous (2–3 previous births), and multiparous (more than 3 previous births). Gravidity, defined as the total number of pregnancies a woman has had in her lifetime, was similarly categorized into first-time pregnancies (primigravida), pauci-gravida (2–3 pregnancies), and multigravida (more than 3 pregnancies). We considered newborns as born from a complicated pregnancy if their mothers experienced any obstetric emergencies, such as obstetric haemorrhage, premature rupture of membranes, preeclampsia and its complications, puerperal fever, or other emergency conditions (2,3). A pregnancy was well monitored if a mother attended at least 4 antenatal care (ANC) and/or at least three ultrasounds according to the WHO fan model of antenatal care recommendations (4). Although the updated WHO model now recommends a minimum of 8 ANC contacts, this has not yet been implemented in Burundi; therefore, the threshold of 4 ANC visits.

According to the WHO, preterm birth refers to any birth occurring before 37 completed weeks of gestation (5,6). Initially, preterm births were categorized into extreme prematurity (<28 weeks), very prematurity (28–31 weeks), and moderate prematurity (32–36 weeks). However, due to a small number of preterm births in some subcategories, we recorded gestational age into two categories: preterm birth (<37 weeks) and term birth ( $\geq$ 37 weeks). Birth weight was categorized as low birth weight (< 2500 grams) and normal birth weight ( $\geq$  2500 grams) (7) and newborn's sex as male or female. A five-minute Apgar score of less than six defined poor newborn conditions. The mode of delivery was either vaginal or caesarean section. Pregnancy type was classified into singleton and multiple (twins, triplets, or more). For analytical purposes, characteristics of mothers who gave multiple births were counted for each newborn.

## References

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