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Editorial

Standing at the Edge of the 'Demographic Cliff'

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According to the census data from Statistics Korea, 2021 is the first time Korea's population shrank since the records began in 1949.[1] This 'dead cross' happened at least 10 years earlier than the population projection made by the same organization in 2016.[2] The global population is still increasing, however the global fertility rate has kept decreasing over the past 70 years with a total 50% decline.[3] The United Nations projects that the world population will start to decrease by the end of this century. The population issue in Korea is very depressing because it took place despite spending almost 400 trillion won on the serial government driven plans called 'Plan fir the Ageing Society and Population' which started in 2005. In this issue of the *Journal of Korean Medical Science*, Yun et al.[4] reported the changes and trends in the population count, number of births and total fertility rates (TFR) in Korea for the past 100 years. In this study, the authors assert several historic events, such as the international oil crisis in 1973, Asian financial crisis in 1997 and the beginning of millennium, that could affect the TFR along with the changes in government policies. There are generally accepted theories that global decline in TFR is related to education of woman, economy, contraceptive use and family planning.[5] Although the authors did not produce any statistical back up to prove if these historical issues are really related, it would be worth considering along with those global factors.

The government has launched the 4th 'Plan for the Ageing Society and Population' for the 5-year period beginning in 2021. This plan demonstrates a shift in paradigm compared to the previous rounds and makes clear strategies to improve individual quality of life, to support families, and to adapt changes in population structure. However, detailed plans to accomplish these strategies seem to be less satisfactory at least in the health care system. The population decline has had a major impact on the capacity of the health systems to continue the delivery of essential health services, especially in pediatrics and obstetrics.

Therefore, the Ministry of Health and Welfare (MOHW) in Korea initiated a project supporting neonatal intensive care units (NICU) since 2008, and high-risk pregnant woman and newborn intensive care centers since 2014, to eliminate the regional medical gap outside the capital Seoul. Both projects made a significant contribution on improving the survival of high-risk pregnant women and newborn infants by fulfilling insufficient NICU beds. However, the numbers of doctors who are needed to work in this field, including neonatologists, pediatric surgeons, pediatric ophthalmologists and other doctors, must increase in proportion to the increase in the NICUs and are not currently sufficient to fulfill

the demand. Since 2016, MOHW also has started a project to support pediatric emergency centers in accordance with the revised emergency medical service act. This project is also having trouble in progress due to difficulties recruiting pediatricians who work exclusively in the pediatric emergency room (ER). And with this reason, many centers are delaying the opening of the center or giving up the designation of the center. The more frustrating concern is that the total acquisition rate of pediatric resident applicants fell down to 24% in 2022, compared to 101% in 2019, and are expected to be lower next year. The waning popularity has been obviously expected as TFR has decreased. However, despite the fact that pediatrics is one of the essential medical services, countermeasures of the shortage have never been discussed until recently.

One may say 'why do we need more pediatricians while the birth rate is declining?' It could be true. But the shortage is not a total number of doctors but of some specialists in laborious and less lucrative fields in medicine. In this regard, staffing pediatricians in the ER or NICU where a doctor has to be assigned 24-7, are more vulnerable. Both ERs and NICUs need an established number of doctors to maintain the 24-7 rule. As mentioned earlier, pediatric emergency centers have trouble opening due to problems recruiting pediatricians. Most NICUs have the same problems, however, the staffing gap had been substituted with pediatric residents. Now it is not possible to maintain a reasonable shift pattern of duties due to acquisition failure of residents, making the NICU the least attractive place to work even within the pediatrics. The bigger dilemma is that the more you go into the rural area and small cities, where most MOWH supported NICUs are located, the worse this problem is.

Recently, we had experienced a sentinel event so called the 'death of a nurse at Asan Medical Center'.[6] A lack of sufficient medical specialists, who work in less lucrative fields, is considered a root cause of this event. As far as I am concerned, this sentinel event that should never happen again will reappear in the very near future. This is why, no matter how low the TFR, the adequate number of neonatologists has to be maintained to ensure the safety of newborns. Standing at the edge of the 'Demographic Cliff', increasing the birth rate is the prime part of the solution, however, we should realize that raising the baby intact after delivery is also an important part as well.

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