



## Editorial

## COVID vaccine wastage: Double trouble in growing pandemic



Sir

Vaccine wastage is said to occur in a vaccination program if the product (i.e. vaccine) is lost before the administration to the general public [1]. There are many reasons for vaccine wastage, the major ones being wastage during transportation, expiration, storage errors or contamination after opening vial [2]. Vaccine hesitancy contribute to wastage in both low and high income countries [3,4]. In Australia the main reason for vaccine wastage was cold chain failure for vaccines requiring refrigeration [3,4]. However in Canada, dropped vials and syringes, expired doses and inadequate management of doses contributed to vaccine wastage [5].

A committee formed by the Government of Nepal to find the missing doses reported that as many as 56,908 doses of Covid-19 vaccines supplied to districts and the local level were wasted. The committee did not find any doses missing but found that thousands of doses of vaccines either expired or were damaged due to negligence or lack of proper handling. According to the report, 25,562 doses of Moderna vaccine were found to have been ruined. Of them 14,020 doses were ruined under the watch of local governments and the remaining 11,542 wasted doses were under the watch of district authorities. Likewise, 19,049 doses of Covishield vaccine doses were ruined and of them 7369 were found ruined at the local level and 11,690 doses at the district level. Besides, 7023 doses of Vero Cell vaccine, 5195 doses of Janssen vaccine, and 79 doses of Pfizer-BioNTech vaccine doses were ruined. According to The Health Ministry, Nepal have received 47,882,800 doses of COVID-19 vaccines out of which 35,575,714 doses were used to vaccinate its population [6].

There are many measures that could be applied to minimize the burden of vaccine wastage. First of all, there must be a sound government policy for proper vaccine delivery and strict inspection policy for the adequate delivery of the vaccine to concerned place and people. There must be the provision of regular reporting of vaccine delivery to the targeted population by the local bodies. For this, use of data reporting system software from the local bodies could be of great help. Vaccine wastage due to unsuitable temperature can be prevented through continuous temperature monitoring and providing results from comprehensive stability studies to vaccine distributors [7]. This will inform the distributors when vaccines can be used in instances when recommended storage temperatures are exceeded. To reduce wastage due to expiry, vaccines should be ordered only for a 1–2-week supply, and old stock should be used before the new [8]. Preloading syringes at the pharmacy with vaccines is not recommended, and new vials should be opened as close to administration as possible [9]. New vials of vaccine are to be opened as close to administration as possible. Pargaien et al. proposed the role of IOT(Internet of Things) for monitoring the

wastage of vaccines due to poor cold chain management [10]. Gorfinkel proposed the use of bar codes to create a robust national vaccine registry [11].

With 51% of world's population being fully vaccinated, the number of vaccines going to waste should be carefully monitored and kept within an acceptable range [12]. For a poor country like Nepal, every COVID vaccine does matter; every dose means saving one life. So, there is a need on the part of authorities to ensure that not even a single dose is wasted. Co-ordinated effort of central and local government along with proper monitoring and surveillance of cold chain system and proper registration system both from the sending and receiving end must be taken into consideration. Then only we can even think of bringing this non-ending wave of Corona virus under control.

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#### Author contributions

First Amrit Bhusal literature review, writing the manuscript, and final approval of the manuscript, Second Dr. Silan Bhandari literature review, writing the manuscript, and final approval of the manuscript, Third Dr. Neelam Kumari literature review, writing the manuscript, and final approval of the manuscript, Fourth Dr. Rajesh Prasad Sah literature review and final approval of the manuscript.

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1. Name of the registry: none
2. Unique Identifying number or registration ID: none
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#### Guarantor

Amrit Bhusal is the Guarantor.

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## Provenance and peer review

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## Consent

Even where consent has been given, identifying details should be omitted if they are not essential. If identifying characteristics are altered to protect anonymity, such as in genetic pedigrees, authors should provide assurance that alterations do not distort scientific meaning and editors should so note.

## Declaration of competing interest

There are no conflicts of interest.

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