
Subject: Neonatal mortality

Posted by [asmita1101](#) on Sun, 05 Nov 2017 12:56:28 GMT

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Hello!

I am looking to calculate neonatal mortality rates using Indian DHS data for 2005-06 for the most recent child born to mothers in the past 5 years prior to the survey. While the stata code to calculate neonatal mortality is clear, I'm not sure how to account for the 'most recent child'.

Can somebody please help me out?

Thanks in advance!

Subject: Re: Neonatal mortality

Posted by [Liz-DHS](#) on Fri, 10 Nov 2017 14:45:44 GMT

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Dear User,

This post from one of our experts, Mr. Trevor Croft should help: http://userforum.dhsprogram.com/index.php?t=msg&th=4424&got_o=8433&#msg_8433

In addition, The Guide to DHS Statistics <http://www.dhsprogram.com/publications/publication-dhsg1-dhs-questionnaires-and-manuals.cfm>

Starting on Page 92 has an explanation of the calculations needed for neonatal mortality.

Thank you for your post.

Subject: Re: Neonatal mortality

Posted by [Pooja Arora](#) on Wed, 20 Oct 2021 08:46:28 GMT

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Why does the "DHS guide to statistics" say that neonatal mortality is death between 0 to 30 days, when it should be 28 days?

Subject: Re: Neonatal mortality

Posted by [Bridgette-DHS](#) on Wed, 20 Oct 2021 12:49:06 GMT

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Following is a response from DHS Research & Data Analysis Director, Tom Pullum:

Thank you for catching this. The current version of the Guide to DHS Statistics is supposed to say 28 days.

Keep in mind that in almost all settings where DHS surveys are conducted, there is not a reliable

vital statistics system. Age at death is based on recall of an event that may have occurred many years ago. The mother will not be concerned about the difference between 28, 29, or 30 days.

Age at death is supposed to be reported in days, if less a month. The length of a calendar month in the Gregorian calendar is not fixed--it can be 28, 29, 30, or 31 days (for some purposes we interpret it as $365.25/12=30.4375$ days).

If you look at the distribution of b6 in any BR file you will see that there are almost no deaths reported at 28 or 29 or 30 days or in the days just before 28. It is very likely that some late neonatal deaths are actually reported at "1 month", which displaces them OUT of the neonatal period. That's probably more common than over-reporting of late neonatal deaths because of slippage between 28 and 30.

There is a measurement issue here, but you are certainly correct about the official definition of a neonatal death and we want to be consistent with that. We'll fix it.

Subject: Re: Neonatal mortality
Posted by [Pooja Arora](#) on Wed, 20 Oct 2021 16:47:02 GMT
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Thank you for such an insightful reply. I am analysing India's NFHS-4 2015-16 data. Here, lot of heaping is there on day-30. So, there is a chance that we might underestimate the NMR.

And if we go by the correct definition of first 28 days, then the STATA code should be ≤ 27 because we are also considering day-0 as the first day. Hence, day0 to day27 completes the first 28 days period.

Subject: Re: Neonatal mortality
Posted by [Bridgette-DHS](#) on Wed, 20 Oct 2021 19:10:05 GMT
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Following is a response from DHS Research & Data Analysis Director, Tom Pullum:

Right--the official definition of the NNMR refers to 0-27 days (does not include 28). However, I think if you compared the alternative definitions, and calculated confidence intervals, they would overlap almost entirely. There would only be a few situations--for example if you were calibrating survey data against vital registration data--in which the difference would be important. But I hope we can update the Guide to DHS Statistics to make the distinction clearer.

Subject: Re: Neonatal mortality

Posted by [AkhilK28](#) on Fri, 19 Aug 2022 03:50:37 GMT

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Hey guys!

I was going through this thread and wanted to ask a couple of questions:

1. In the DHS-7 Guide to Statistics Version 2, neonatal mortality is still defined as 30 days but are you confirming that it should be 27 completed days?
2. In the India DHS final reports for NFHS-4 (2015-16) and NFHS-5 (2019-21), could you confirm that the neonatal mortality rate presented is for the first 27 completed days?
3. Could you please confirm the Stata files in the DHS CodeShare project will reproduce the neonatal mortality rate presented in the final reports which is for 27 completed days? Here is the link to the Stata DO file: https://github.com/DHSProgram/DHS-Indicators-Stata/blob/master/Chap08_CM/CM_CHILD.do

Our analysis wants to match the WHO definition and would like to use DHS data to produce those estimates. We want to be 100% clear on the definitions before releasing anything!

Thank you so much!

Subject: Re: Neonatal mortality

Posted by [AkhilK28](#) on Fri, 19 Aug 2022 03:55:16 GMT

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I forgot to send a reply to this message and instead posted a new message in this thread!

Super sorry about that, but please let me know if you still see my message in this thread; I'm a bit new to all of this!

Subject: Re: Neonatal mortality

Posted by [Bridgette-DHS](#) on Mon, 22 Aug 2022 12:02:55 GMT

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Following is a response from DHS Research & Data Analysis Director, Tom Pullum (Trevor Croft and Fred Arnold contributed to this response):

In general, including in the NFHS's and the programs on GitHub, DHS uses a modified definition of the neonatal mortality rate. For DHS, neonatal deaths are those in the first month (30 days) rather than the first 28 days. As you would know, b6 gives completed age at death in days for the first month, then in months up to the 2nd birthday, and then in years. (There are always some cases outside the intended boundaries.) Then b6 is converted to b7, age at death in months, and all the calculations of rates are based on b7. Month b7=0 is equivalent to b6=100 through 129,

inclusive (the first digit, "1", indicates that the units are days). Usually a few other cases are coded into b7; if you tabulate b7 against b6 you will see how the exceptions are handled. Under the usual definition of neonatal mortality, b7 would be equivalent to b6=100 through 127, inclusive.

This construction of b7 is related to how DHS constructs the infant mortality rate to make maximum use of the exposure and deaths in the year before the survey. The IMR uses deaths in months 0, 1-2, 3-5, and 6-11. If month 0 were changed to 4 weeks, there would be ramifications for the other intervals. As I said, after the first month, age at death is reported in completed months, not days.

If you look at the data, even in surveys as large as NFHS-4 and NFHS-5, virtually no deaths are reported at days 28 and 29. A greater concern is the likely misreporting of such deaths into month 1, that is, 1 completed month. Removing days 28 and 29 from the calculation of the neonatal rate would make virtually no numerical difference but would give a spurious appearance of increased accuracy. A distinction between the first four weeks and the first month is more appropriate for clinical settings than for retrospective surveys such as DHS. In some analyses of recent under-five mortality (see, for example, <https://www.dhsprogram.com/pubs/pdf/FA142/FA142.pdf>), we DO make this distinction. However, we have no plans to change the current definition.

Subject: Re: Neonatal mortality
Posted by [AkhilK28](#) on Mon, 22 Aug 2022 16:56:06 GMT
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Hi Tom, Trevor and Fred,

Thank you for your detailed response! I know this seems like a pointless exercise, but since we are tracking government policies in India, even a slight deviation from the official definition can make policymakers and the public throw out the entire data! In India, specific targets made by the government for neonatal mortality follow the WHO definition, which means if we report a different definition, it just raises more questions.

A potential solution I thought of was to code b7=0 when b6=100 through 127 inclusive and then add deaths at 28 and 29 days in addition to deaths imputed/flagged into b7=1. Therefore, when using the synthetic cohort life table approach to calculate the mortality rates, we will still define NMR as 0-27 days inclusive and PNNMR/IMR to include all the deaths right after the first 28 days.

I looked over the approach you used in the Liberia report, and while that approach is very common, footnote 7 addresses the drawbacks of this and also mentions significant downward bias, especially for the CMR. Since we are limiting the mother's recall to the past five years to minimize recall bias, this might affect our analysis. Additionally, in our study, we calculate the rates for each state in India which might cause some states to be more affected than others. However, that strategy seems to be the best when analyzing early neonatal deaths vs. late neonatal deaths!

Once again, thank you for getting back to me and let me know if you have any thoughts/comments on the above! I appreciate all of your help in this for our study!

Thanks,

Subject: Re: Neonatal mortality

Posted by [Bridgette-DHS](#) on Tue, 23 Aug 2022 11:41:05 GMT

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Following is a response from DHS Research & Data Analysis Director, Tom Pullum:

Yes, any differences in definition can be problematic. However, the use of 30 days rather than 28 is just one of many things at DHS that were decided long ago. It would be possible (if not easy) to make a change going forward EXCEPT THAT there would be a discontinuity with the past. Would we then go back and re-calculate the rates from hundreds of surveys? We could make changes in STATcompiler, but what about all the final reports for the past 35+ years?

In the case of the NFHS-5, out of 8,702 deaths to children born in the past 5 years (b5=0 in the KR file) there are 16 deaths on day 28 or 29--a proportion .0018387. If you look at the distribution of day at death there is heaping on multiples of 5, even numbers, and multiples of 7. 15 deaths are reported on day 28, 1 on day 29, and 11 on 30. These are not numbers I would have much confidence in.

The Liberia further analysis report clearly stated that proportions based on age at death in the KR file were not rates. Most of the under-5 mortality rates are compound and can only be calculated for aggregates. And, as you say, the focus was really on early vs late neonatal deaths.

You can of course make adjustments to the data, for example in the way you described. Hope you can find a way to finesse this issue.

Thanks for using DHS data!
