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ABSTRACT

The achievement of global sustainable development goals (SDGs) depends largely on India's progress, given the country's massive size and its moderate historical success in key health and nutrition outcomes over the last several years. This further increases the relevance and need for effective monitoring of India's performance, through timely and disaggregated data, which ensures systematic assessments and course-correction. As India will be depending mainly on surveys to supply target-related data in the medium run, this paper classifies existing health and nutrition indicators from the draft National Indicator Framework (NIF), in terms of data availability. By highlighting the gaps in available data, the authors make specific recommendations to streamline existing surveys to align them with the requirements of an NIF for the SDGs. The authors review the draft NIF released by the Ministry of Statistics and Programme Implementation (MoSPI), and propose a revised one as part of this exercise.

I. INTRODUCTION

On 25 September 2015, the General Assembly of the United Nations (UN) adopted the Sustainable Development Agenda and secured commitments from member-nations to a "comprehensive, far-reaching and people-

centred" set of universal and transformative development goals.[1] India, being a signatory, has to devise a vision with actionable strategies and targets, keeping national realities and timelines in mind. In this regard, the Ministry of Statistics and Programme Implementation (MoSPI) has drafted a National Indicator Framework (NIF) that will lay the foundation for India's SDG tracking.[2] A complementary exercise of mapping of policies and programmes under various nodal ministries associated with each of the goals and targets was conducted earlier by NITI Aayog.[3] The draft NIF called for inputs from stakeholders for thorough revision, effectively negotiating data availability within health and nutrition sectors. A robust NIF will help continuous tracking of the national targets to enable mid-course correction in policy.

Rolling out the NIF requires a robust data-collection framework that furnishes quality data on a regular and timely basis. This makes it imperative to scrutinise and steer all potential sources of data generation towards facilitating target-tracking, including the need for disaggregated data to meet the equity agenda of SDGs.[4] Taking into consideration the fact that Civil Registration System (CRS) has scanty coverage barring few states,[5] and Health Management Information Systems (HMIS) as well as surveillance systems largely exclude healthcare provisioning by the private sector,[6] India will largely be depending upon population surveys for health and nutrition targets, in both short and medium terms.[7] It is necessary to harmonise the data collected by these surveys, keeping in mind the requirements of the equity agenda of the SDGs. This will obviate the dependency on suboptimal sources of data.[8] However, these surveys are commonly conducted and managed by various agencies under the aegis of different government ministries addressing various policy objectives. The fragmentation of data collection apparently results in suboptimal information sharing between ministries as well. At the 48th session of the UN Statistical Commission on 15 March 2017, MoSPI made an unambiguous statement that "[the] Government of India (GoI) is not aware of any Food Insecurity Experience Scale (FIES) survey in India,"[9]

even as FIES is being canvassed as part of the Comprehensive National Nutrition Survey' (CNNS) by the Ministry of Health and Family Welfare (MoHFW) and Unicef.[10]

To begin with, India admittedly has the capacity to produce data for only 23 out of the 231 indicators,[11] and will soon have to either devise an exhaustive system of data generation to track progress or to adapt indicators based on existing data sources. At the culmination of MDGs in 2015, the MoSPI, responsible for tracking and monitoring MDGs in India, highlighted that non-availability of data at the sub-state/district level prevented a comprehensive appraisal of the impact of MDGs.[12]

The two largest sources of population-level data that remain primary for health and nutrition in India are the National Family Health Survey (NFHS), conducted by the MoHFW, and the National Sample Survey (NSS) conducted by MoSPI. Although the NFHS covers a wide range of indicators and will repeat every three years according to latest plans,[13] doubts remain whether such frequency is even possible, given that the previous round happened ten years ago. Drafting NIF aligned with the SDGs provides an opportunity to streamline existing national surveys as the source for a comprehensive set of indicators around reproductive, maternal, newborn and child health (RMNCH), as well as nutrition.

Researchers have warned that finding reliable metrics to track India's SDG progress is going to be a massive challenge, given the fragmented nature of the health and nutrition data infrastructure in the country.[14] Keeping in line with the SDG theme of "leaving no one behind," the inequalities within these themes that can be addressed require that each aspect is represented credibly in the policy formation processes and evaluation. Therefore, it is imperative that geography, gender, age, social groups, economic class and other dimensions be represented in the data.

The Observer Research Foundation's (ORF) Health Initiative has organised various events and published a series of peer-reviewed papers, issue briefs, and special reports carrying policy recommendations on data limitations, challenges, and implications for the pursuit of SDG targets,

with a particular focus on health and nutrition. This paper is part of the series, and the views presented are based on both a literature survey and analyses stemming out of the deliberations and recommendations from a technical focus-group discussion convened by ORF on the issue of streamlining existing national surveys to improve target-tracking in health and nutrition.[15]

The paper builds on ORF's existing work and outlines issues related to the feasibility of monitoring indicators through an examination of the available information base. As a starting point, the health and nutrition indicators listed in the draft NIF are classified into three categories using pre-defined criteria. The paper concludes with two sets of recommendations: the first set is specific to generation of better data by streamlining existing surveys through altering data construct and revising instruments for data collection, and the second is around the modifications to the NIF itself. Advocating for streamlining existing surveys, however, does not undermine the importance of improving upon other aspects of the health and nutrition data infrastructure, discussed elsewhere.[16]

The rest of the paper is organised as follows:

With a focus on analysing the scope, availability and appropriateness of indicators in the NIF, section II presents a methodology for systematic classification of NIF indicators into categories of priority in terms of changes needed in the system to address gaps. Section III discusses the availability of data from existing national surveys to populate the NIF, based on the analysis of indicators under each category. Section IV distils the discussion on category 1, 2, and 3 indicators, and makes recommendations for streamlining existing surveys as well as revising NIF, acknowledging the limitations of the indicators and negotiating data constraints.

II. METHODOLOGY: CLASSIFYING THE NIF INDICATORS

Under the UN General Assembly's Resolution 70/1, an Inter-Agency and Expert Group (IAEG) was mandated to develop a global indicator

framework for monitoring the goals and targets of a post-2015 development agenda that at its heart would entail equity and sustainability. The framework was expected to give a comprehensive set of indicators, which are simple yet robust and are reflective of inter-country diversities, preserving the ambition of bringing nations together irrespective of their levels of development. Thus, the development of the framework was in accordance with differing national realities, capacities and levels of development and respective national policies and priorities.[17] In this context, the member-nations also recognise the importance of adequate data for the follow-up and review of progress, and agree to intensify efforts to strengthen capacity-building, especially for developing countries.

Following the broader mandate, the IAEG undertook a global assessment of the level of methodological development and overall data availability for the selected SDG indicators and grouped these into three different tiers; the global indicator framework currently contains 82 tier-I indicators, 61 tier-II indicators and 84 tier-III indicators. However, the status of data availability varies across countries.[18]

The situation in India in the context of availability of data differs from the global picture that emerges from the tier classification. To assess the availability of health and nutrition data from existing national surveys, an exhaustive analysis of the data sources and their timeliness was undertaken which required mapping data sources for information and going into the nature of questions asked to collect specific information. The following section gives a detailed analysis of the indicators, based on the draft NIF.

Systematic Classification of the NIF Indicators

The following section presents a comparison of the NIF with the global framework, and a schematic classification. Building on the global schema, the indicators are divided into three categories, based on analysis at two levels. The first level pertains to analysing the availability of data through established sources in the country. The understanding of mapping current

and potential data sources largely draws from ORF's previous work on the issue.[19] The availability of data for indicators is mapped concurrently with the level of disaggregation. In the case of unavailability of data for particular indicators, the possibilities of either modifying an existing question/biomarker in the household surveys (and/or in combination with some other sources of information) or adding a focused module within the survey tool is suggested in essence of the rationale and normative interpretation of indicators as laid by the UN. The second layer of analysis relates to the alignment of the NIF indicator with the specific SDG targets. Final classifications are arrived at based on the following norms:

Category 1 has indicators that are conceptually clear, has clear and direct questions/biomarkers covered and available through either NSSO (to be conducted in every five years[20]) or NFHS (to be regularly conducted every three years[21]) or other government sources that can offer state-level (for all states), and potentially sub-state-level indicators. Minor revisions are still suggested for certain indicators in this category, where availability of data at a further lower level, say district, was possible.

Category 2 has indicators that do not have conceptual clarity or ease of operationalisation through a methodology. Thus, some modification may be required in either the available data-generation methods through rephrasing questions, adding a focused module within the survey instrument, re-categorising the response codes or replacing them with information available through existing surveys. The replacement indicator was chosen based on availability, informed by reflection on the normative interpretation of the goal and respective targets. This category also includes those indicators that are conceptually clear, though the data is not available for all states and union territories (UTs).

Category 3 has indicators for which there are reliable data currently unavailable, or need to be revised completely, given that either there is no scope of including them in the current data-generation processes or they require a different mode of data generation through routine statistics,

special surveys, rapid assessments, among other activities. Here, too, alternative indicators are suggested to be included in the NIF.

Based on this methodology, 52 indicators in the NIF directly related to health and nutrition were analysed. Seven of these indicators were repeated more than once. Two indicators, (Indicator 3.8.16, percentage of attributes of 13 core capacities, repeated once; and Indicator 3.b.2, total net official development assistance to the medical research and basic health sectors) were excluded from the analysis as they were beyond the scope of this exercise. Thus, in all, 43 indicators were categorised. The detailed matrix generated as part of the analysis is given in the annexure. The following session discusses, category-wise, the individual indicators that were analysed.

III. AVAILABILITY OF DATA FOR THE NIF FROM THE NATIONAL SURVEYS: A DISCUSSION

The analysis of the indicators from the draft NIF was done keeping in mind the availability at the smallest disaggregated level, which in the Indian context is the district. However, it should be noted that availability of some indicators is perceptibly poor at the state level and data at district disaggregation is highly limited. Therefore, those indicators that are available at the state level for all states and UTs, with some scope for sub-state estimates, were added in the first category. Currently, 15 out of the 43 indicators—after removing the seven repeat indicators—are in category 1, with reliable data available at the state level for all states, both big and small. Out of these, only a few have data available at the district level.

In the following section, each indicator is discussed under these categories:

1. Indicators Under Category 1:

Indicators 2.2.1 and 2.2.2 pertain to prevalence of stunting and malnutrition among children aged five and less than five, respectively. With a fivefold increase in the sample size of the survey, NFHS-4 can give

robust estimates at the district level. The indicators 3.2.1, on under-five mortality rate, and 3.2.2, on neonatal mortality rate, are available through the NFHS survey, given that the survey has RMNCH as a focus. The mortality rates can be estimated using established techniques based on birth history and survival information obtained in the survey. None of these mortality rates can, however, be estimated beyond state level, given the sample size constraints. Strengthening of CRS alone can help provide regular sub-state mortality numbers.

The coverage indicators, such as indicator 3.1.2, on skilled birth attendance, is available at the district level from the NFHS. In addition, there is a group of indicators[22] for age-related fertility and health-service utilisation for maternal and family planning services, which have disaggregated data available from NFHS. The indicator 3.7.2 on adolescent births is kept in the first category, despite the possibility of high relative sampling errors in general and specifically for the states where the proportion of child marriages are low. Even while estimation has challenges, NFHS is expected to offer district-level estimates, where marriage before legal age is a problem. As the age of marriage is going up across the country, the error margins will increase, and for this reason, attention can be given to indirect estimates that can offer a robustness check for the directly obtained estimates.

There are a few indicators for which the data through both NFHS and NSS can be triangulated for target tracking and progress appraisal. The indicator 6.1.2 on proportion of population using an improved drinking water by source as well as indicator 6.2.2 percentage of population using basic sanitation services are available with NSS and NFHS surveys. Description-wise, "Basic sanitation" connotes improved sanitation,[23] and district-level numbers are readily available from NFHS-4. However, before proceeding with any exercise of triangulation, there is a need to carefully evaluate the definitional aspects and their match between NFHS and NSS. For example, there is a variation in the definition of what is labelled as "improved drinking water sources" across NFHS-4 and NSSO 69th round.

Indicator 3.8.14, dealing with human resources for health (HRH), can be made available from Census as well as NSS' employment rounds based on occupational classification, which can be obtained at the state level. NSS will be the choice, as Census numbers will be available only after considerable delay.[24] While it is possible to arrive at a composite number, having separate estimates for nurses and midwives is currently impossible as these categories are merged at the point of data collection. NSS samples are sometimes considered too small for arriving at robust state-level estimates.[25] However, assigning population weights using the Census can help in arriving at robust employment estimates. The pooled data of state and central samples of NSS should enable generation of estimates at the sub-state level.[26] Given the prominent role they play in the delivery system, a separate code for community health workers in NSS can help get better, policy-relevant estimates. Currently, the National Classification of Occupations, which NSS and Census follow, does not have a separate code for community health workers. In terms of analysis, this remains a major blind spot.[27]

Data for the indicators 3.8.17 and 3.8.18 on out-of-pocket (OOP) expenditure on health and poverty headcount due to OOP expenditure on healthcare can be obtained from NSS morbidity rounds. However, there are limitations to the conventional measures of catastrophic financing that systematically excludes people who are unable to seek necessary care due to lack of purchasing power.[28] To mitigate such deficiency, a complementary 'health need-based' analysis with an indicator on the proportion of people not accessing medical care for financial reasons will furnish a better picture. Moreover, given the focus on insurance-based interventions, harmonising the data on health insurance collected by NFHS and NSS is necessary. While NFHS collects data on ESIS, CGHS, and schemes for BPL populations separately, NSS treats all "government-funded insurance schemes" as a single entity, reducing scope of analysis. However, before modifying survey instruments, sampling adequacy for each of these separate categories will need to be kept in mind.

Lastly, for the indicator 3.8.12 pertaining to tobacco use among individuals, NFHS provides information on the "use of any kind of tobacco" from men and women, aged 15–49, at the district level.

2. Indicators Under Category 2:

Out of the total of 43 indicators analysed, nine belong to category 2, which represents the set with data sources that have some scope for improvement or where possible alternatives offering better geographical coverage are available.

The global indicator pertaining to the indicator 2.1.1 on "prevalence of undernourishment"[29] refers to lack of calorie intake, in terms of minimum dietary energy requirement norms. Since calorie consumption is collected by the NSS only at the household level and not at the individual level in India, the scope of analysis will be limited. District-level indicators using the NSS data may be possible only if pooling of state as well as central samples are conducted. For this reason, while using "prevalence of undernourishment" for global reporting, it may be prudent for India to use "percentage of underweight" (children) or "percentage of low BMI" (adults) for sub-national tracking. As undernutrition is a widely prevalent problem, with pockets showing highly worrying numbers, it will make policy sense to track these indicators disaggregated for socioeconomic categories at the district level. NFHS provides data for these indicators at the district level and disaggregated estimates can be generated for children, women and men, although not covering the overall population, and only children and the reproductive age group will remain a handicap. Moreover, given that undernourishment is not spread uniformly across all segments of the population at the sub-national level, any indicator expected to capture inequity in it should have the sufficient sample size at the sub-group level to provide comparable estimates.

Indicator 3.1.1 on "maternal mortality ratio" is an extremely important one, given the scale of the problem in the Indian context. Data on maternal deaths in the two years preceding the survey have been collected in NFHS

rounds 1, 2 and 4, which can give comparable estimates.[30] While the earlier sample design may have been inadequate for robust state-level estimates of MMR, the enhanced sample of the latest round is expected to give estimates for states with confidence intervals to specify the level of precision. However, the relative sampling errors may be huge for smaller states, and therefore, it is kept in category 2. The Sample Registration System, under the office of the Registrar General of India (RGI), also gives estimates of MMR from pooled data for states, but covers only bigger states.[31]

The data for indicator 3.3.1 on new cases of HIV infections per 1,000 unaffected populations is generated by the National AIDS Control Organisation (NACO) on a regular basis through estimation based on Integrated Biological and Behavioural Surveys (IBBS) and HIV sentinel surveys (HSS). The IBBS and the HSS are regarded by the World Health Organization (WHO) as the best sources for generating statistics for HIV/AIDS, based on disease-characteristics using a network of health facilities delivering care to the populations exposed to it through a specific mode of transmission. The latest round of NFHS too offers to provide information on HIV prevalence for adult women and men at the national level and for 11 states/groups of states/UTs, including high HIV prevalence states. These estimates are expected to be used to triangulate the HIV estimates that are based on NACO's surveillance data.[32]

Data for the indicator 3.3.2 on Tuberculosis (TB) incidence is often sourced from the countrywide programme aimed to identify and treat people with TB. TB being a notifiable disease, the programme generates statistics based on numbers from public and private sectors. However, due to the limited success with notification of TB by the private sector, there is serious underestimation.[33] The NSS morbidity round as well as NFHS have questions on (self-reported) TB, and can potentially give state-level estimates of self-reported TB. However, data quality and representativeness need to be ascertained to determine robustness of estimates at national and state level.

The data pertaining to the indicator numbered 3.8.6 of the draft NIF on the percentage of PLHIV (People Living with HIV) currently receiving ART (Antiretroviral Therapy) among diagnosed adults and children living with HIV is available only through HSS. This data might be available even at the district level from the programme records, as ART medication is strongly monitored via diagnostics, and all the hospitals providing free drugs maintain records at the state headquarters.[34] However, coverage of private sector will still be an issue.

Use of Insecticide Treated Nets (ITN) in the malaria-endemic regions is incorporated as indicator 3.8.7 under the draft NIF. The NFHS gives the use of bed-net (for the previous night) by members of a family. However, the use of bed-nets the previous night may not be a good indicator to look at the disease burden, primarily because of bias in reporting due to seasonal changes, and this indicator needs revision. A possible alternative can be "the proportion of households that have an insecticide treated net/bed net," based on NFHS data. However, this indicator can only report mere presence and not usage. Thus, complementing the information on presence, usage and classification of nets based on treatment can be added to the existing survey instruments.

The indicator 3.8.9 in the NIF reads "Proportion of population (aged 18 years and above) who are currently taking antihypertensive medication among number of adults (18 years and older) who are taking medication for hypertension with systolic blood pressure $\geq$ 140mmHg, or with diastolic blood pressure $\geq$ 90mmHg." This is likely to be a typographical error for "proportion of population (aged 18 years and above) on hypertensive medications to the total people with systolic blood pressure $\geq$ 140, or with diastolic blood pressure $\geq$ 90mmHg." The information on blood pressure is collected in NFHS-4 in the biomarker survey separately for men and women (aged 15–54) along with self-reporting on being prescribed drugs. The survey covers just the eligible population of reproductive age group, thus limiting the usefulness in estimating the real burden of hypertension, a disease that mostly impacts older people.

However, a combination of NFHS and Longitudinal Aging Study in India (LASI) survey on aged can generate trend analysis on the mutually exclusive age categories. First wave of LASI is currently underway and will only cover people aged 45 years and above. Despite this weakness, it still can be a valuable addition to the NIF.

The question related to the target 3.8.11 on the proportion of women (aged 30–49) ever being examined for cervical cancer can be accessible from NFHS women questionnaire. Re-classifying eligible women (from 15–49) to the required age group will indicate proportion of women ever undergoing a cervix examination. However, it is unclear from the way the question is framed and the placement of the question (with screening for oral cavity and breasts) in the questionnaire and interviewer manuals whether this question on ever undergoing a cervix examination meant undergoing a preventive screening for cancer or not. If the indicator in NIF aims to assess the coverage of cancer-specific screening, the percentage of women who have ever undergone breast examination will capture the essence, since it is a common type of cancer among women and the information is available with NFHS.

The indicator 3.8.13 on number of Outpatient Department (OPD) visits per person per year and Inpatient Department (IPD) admission rate per 100 population per year is given directly by the NSSO surveys on health. The data is available from the NSSO morbidity survey. However, robust district-level numbers may not be available unless central and state samples are pooled.

3. Indicators Under Category 3:

Predictably, category 3 constitutes the largest number of indicators, reflecting the huge scope for improvement. In all, 19 indicators out of the total 43 fall under this category.

The indicator 2.1.2 pertaining to the prevalence of moderate or severe food insecurity based on the recommended FIES does not have any existing data source in India. However, FIES is being canvassed as part of

an ongoing survey called "Comprehensive National Nutrition Survey" (CNNS) conducted by Unicef and MoHFW.[35]

The incidence of malaria (indicator 3.3.3) is not available through any source except district-wise malaria incidence and blood examination reports provided by the National Vector Borne Disease Control Programme (NVBDCP). The NSS too gives some information through the healthcare utilisation in the surveys on "social consumption of health," which will now give us data after every five years. NVBDCP data reports are deemed incomplete as they do not cover the private sector.[36] The reported diagnosis and/or symptom for which IPD and OPD care was sought in NSS gets coded as "nature of ailments," and can be used to ascertain incidence of malaria if a separate code other than "all other fevers" is given for malaria. Interestingly, in the previous morbidity round (2004), a separate code for malaria was given, which has been removed in the latest round for reasons that are unclear.[37] The estimates, however, may suffer from seasonality bias, as malaria is mostly reported during monsoon and post-monsoon period. Ideally, data for this indicator should be provided by routine surveillance.

Data for the indicator 3.3.4 on incidence of viral hepatitis (including A, B, C, D, E) are not available through any surveys. Although the disease codes in NSS do not include hepatitis, the report clarifies that the working definition for jaundice includes hepatitis as well.[38] While self-reported information may not be ideal for assessing the true incidence, NSS and NFHS might consider having a separate question on hepatitis. As with malaria, ideally, routine surveillance alone can fetch the information for this indicator, although only hepatitis A and B (not C, D and E) are notifiable, under the regulatory framework of the GoI. Since data is not currently available, immunisation coverage can be used instead as a temporary proxy for risk, even as only hepatitis B is part of universal immunisation.

The indicator 3.3.5 on the proportion of population requiring interventions for the treatment of the Neglected Tropical Diseases

(NTDs)[39] does not have data sources except through the corresponding programme Management Information System (MIS), which do not cover the private sector adequately. However, some diseases such as dengue, chikungunya and viral leishmaniasis are endemic in particular seasons in certain spots. Therefore, the government can think of conducting rapid assessments of the burden during outbreaks through household surveys conducted in the endemic areas or through sentinel surveys. In the NSS morbidity round, in the "nature of ailment" variable, apart from "all other fevers," dengue must be captured separately with a separate code. As an emerging disease causing considerable morbidity/mortality burden, dengue can be tracked as a representative indicator for NTDs. Given that previous exposure to dengue is known to increase the potency of Zika infection, more data on dengue is necessary for system preparedness. Since SDGs mandate monitoring of the disease burden for the NTDs, MoSPI can think of including them as a separate disease category in the health survey conducted by NSS.

The data pertaining to indicator 3.4.1 on the mortality estimates attributable to cardiovascular diseases, cancer, diabetes or chronic respiratory diseases are not collected in any regular surveys, although some morbidity estimation is available. Only Medical Certification on Causes of Death (MCCD)surveys conducted by Sample Registration System (SRS) can give data on causes of death through household surveys. However, if the goal is to reduce the burden of non-communicable diseases (NCDs), then taking the second-best available statistics on "morbidity due to NCDs" instead of mortality is a feasible option.

Data on causes of death may become redundant if seven years' worth of data are pooled to get state estimates, as is being done currently.[40] Rates for diabetes and hypertension can be used as proxy for risk, provided by NFHS. Additionally, self-reported cancer, asthma and heart disease numbers for men and women can be used from NFHS.

For indicator 3.4.2 on suicide mortality rate, data sources within surveys remain absent. National Crime Records Bureau (NCRB) is the only

source of data on suicide mortality. The NCRB data is incomplete, given the substantial definitional issues on suicide as well as under-reporting.[41] Thus, relying on SRS–MCCD based on verbal autopsy remains the only way. The estimates for 2007–13 give data for bigger states and UTs,[42] which come with considerable delay. Alternatively, NFHS household questionnaire has a question—"Was the death in the family due to an accident, violence, poisoning, homicide or suicide?"—that can be used to estimate this indicator, if the data can be collected for these categories using separate codes rather than a composite one. Alternatively, NSSO morbidity surveys can be used to obtain information on disease burden under "mental illnesses" at the state level.

Reliable data for indicators 3.5.1 and 3.5.2 on coverage of treatment for substance abuse and harmful use of alcohol among people aged 15 years and above remain absent in India. A one-off survey titled "National Survey on Extent, Pattern and Trends of Drug Abuse in India" was done in 2004 by Ministry of Social Justice and Empowerment (GoI) and the UN Office of Drugs and Crime. There are routine data available from 122 centres offering interventions on Drug De-Addiction Programme (DDAP), MoHFW. Usefulness of routine data remains an issue as the coverage of private sector is a major challenge. In the long run, strengthening collection of routine data from the DDAP, including private sector, can be the way forward.

In the case of alcohol, there is a need to streamline the construction of data collected by the regular surveys (NFHS and NSS). NFHS asks a question on alcohol consumption to men and women eligible for regular investigation, and NSS records consumption in the consumer-expenditure surveys. NFHS asks men and women about their drinking habits including frequency and type of alcohol and NSS records quantities consumed by households in a month. NFHS records the frequency and type of alcohol but not quantity. NSS cannot give individual consumption, and is likely to underestimate because of underreporting as well as poor recording of consumption outside home.

Defining "harmful use" by restricting type and/or frequency (proxy for quantity) can be a way forward. In addition, NFHS and NSS can revise questions regarding alcohol consumption respectively. NFHS can include a question on quantity along with frequency and type of alcohol consumption. NSS can consider including individual consumption of alcohol and tobacco products in a separate module to record consumption of food, tobacco and liquor (in the house and outside) by individuals. For the short run, the NIF indicator can be the proportion of people usually drinking "hard liquor" and drinking "almost every day," given the availability of this data with NFHS for the district level.

Data for the indicator related to mortality due to traffic injuries (3.6.1) have issues similar to suicide mortality data. NCRB remains unreliable, and no household survey data are available on death rates other than SRS. In "causes of death," SRS has a category "unintentional injuries: motor vehicle accidents," but its policy relevance is questionable if we pool seven years' data, with considerable delay, to get state estimates.

The NSS morbidity survey question on the "nature of ailment" across IP and OP can work as a proxy. However, currently, "accidental injury, road traffic accidents and falls" are grouped together as a single variable. Separate data on road traffic accidents will have to be collected by NSS in the "nature of ailment" question. Alternatively, the NFHS question, "Was the death in the family due to an accident, violence, poisoning, homicide or suicide?" can be tweaked to have a separate answer on traffic accidents.

Data required for the indicator 3.8.3 on the percentage of children (aged 12–23 months) who received three doses of pentavalent vaccine before their first birthday is not available through any survey. NFHS survey, however, collects information on immunisation for four of the five diseases covered under pentavalent vaccine barring HiB vaccine for haemophilus influenzae type b. Subsequent waves of NFHS can add this information. For now, the percentage of fully immunised children— percentage of children (aged 12–23 months) fully immunised for BCG, measles, and three doses each of polio and DPT—can be a viable

alternative, for which data is available at the district level. Especially if full immunisation coverage is not part of the final NIF as an indicator for target 4.2, it should be part of target 3.8.

Data for the indicator 3.8.4 in the NIF, the percentage of children under five years of age with suspected pneumonia (cough and difficulty breathing, not due to a problem in the chest and a blocked nose) in the two weeks preceding the survey who sought care from appropriate healthcare facility or provider, does not exist in any national-level source in India. Nevertheless, all rounds of the NFHS collect data on the "percentage of children with acute respiratory infection (ARI) in the last two weeks preceding the survey who sought care", which can be considered a proxy for pneumonia. This data is available for the district level.

NIF's indicator 3.8.5 on the percentage of TB cases successfully treated (plus treatment completed) is available from RNTCP programme data at the state and district levels. However, coverage of the private sector remains a major gap and the programme data cannot give reliable estimates of cure rate; therefore, an alternative indicator needs to be explored. NFHS-4 gives information on morbidity as well as treatment, although the exact information on cure rates may not be available. NFHS-4 can give the "proportion of people self-reporting TB who are ever treated." In the long run, the coverage and engagement of private sector should be scaled up to get reliable estimates of the burden and to ensure treatment adherence, thus reducing chances of developing resistance.

Indicator 3.8.8 on population using safely managed drinking water and sanitation services is a combination of two other NIF indicators (6.1.1 and 6.2.1). While NSS and NFHS collect data on the nature of source of water as well as sanitation facility, the phrase "safely managed" is difficult to operationalise, and currently, there is no data available in the Indian statistical system on this aspect, other than on some elements such as handwashing. Dropping these three indicators is suggested, as NIF already has other indicators on "proportion of population using an improved drinking water by source" as well as on "percentage of population using basic sanitation services," which have been discussed earlier.

The indicator 3.8.10 in the NIF, reads "proportion of population (aged 18 years and above) who are currently taking medication for diabetes (insulin or glycaemic control pills) among the number of adults (18 years and older) who are taking medication for diabetes or with fasting plasma glucose e" 7.0 mmol/L," which, in all probability, was meant to be the proportion of people aged 18 and above on medication for diabetes out of the total people with a fasting plasma glucose reading of more than or equal to 7.0 mmol/L (126mg/dL). However, NFHS has data on random (and not fasting) diabetes test, and information on medication is not available. That NFHS is limited to the reproductive age group somewhat limits the usefulness of information as well. However, as it allows for trend analysis every three years, a modified indicator covering treatment of diabetes, customised to align with available data with NFHS can still be a very valuable addition to the NIF.

Indicator 3.8.15 in the NIF, "percentage of health facilities with essential medicines and lifesaving commodities" does not have possible data sources in its current form. Centralised drug procurement and disbursal records of essential medicines by each state can give some information, but it cannot help estimate the shortfall of medicines. Arriving at an operational definition of "lifesaving commodity" may add an extra layer to the problem at hand. In this context, health-seeking behaviour by local population can be a good proxy of dependability and quality of public sector. NSS collects data on the percentage of people reporting ailments who didn't choose government hospitals, because of "required specific services not available" or "available but quality not satisfactory," which can be used in the revised NIF.

Indicators pertaining to mortality due to household/ambient air pollution (3.9.1), unsafe sanitation, lack of hygiene (3.9.2) and unintentional poisoning (3.9.3) are difficult to obtain from the household survey for the reason that attribution of death to these causes is difficult unless it is an extreme case. SRS data at the state level will have limited policy relevance because of the delay involved and the necessity for pooling many years of data. This set of indicators need to be revised, with a focus on

morbidity burden instead. Self-reported asthma from NFHS will be a good proxy for 3.9.1 and self-reported diarrhoea from NFHS will be a good proxy for 3.9.2. Data for indicator 3.9.3, mortality rate attributed to unintentional poisoning, can be potentially collected by NFHS, which has the question: "Was the death in the family due to an accident, violence, poisoning, homicide or suicide?" However, as discussed earlier, data for these categories will have to be coded and collected separately to develop this indicator. Alternatively, NSS data on households reporting morbidity due to poisoning can be used to develop a new indicator.

Indicator-wise scrutiny of availability of questions and/or biomarkers in each household survey instrument relating to the feasibility or tracking capacity yielded a comprehensive understanding of sources of data vis-à-vis the NIF. Based on the exercise, it can be concluded that respective health surveys need to furnish indicator data that are comparable across rounds and between surveys. The periodicity of surveys need to be driven by need, purpose, opportunity cost as well as by the potential for driving programmatic decisions on the ground. Preferably, year-long surveys capturing seasonal variability with standard recall periods, and internationally prescribed disease codes with sub-modules on focused diseases will allow for detailed analysis of disease burden at the sub-national levels. The sufficiency of sample representative of tenable administrative levels will not only enable target tracking at disaggregated levels but will also facilitate programme monitoring. Adding fresh questions on themes with limited availability of information through surveys will also be useful.

The current data-generation process can be smoothened to incorporate critical information on insurance enrolments, coverage and usage along with a wide-ranging information on consumption expenditure in general, and health expenditure in particular. In a nutshell, combining the strengths of various surveys and encompassing a holistic design that caters to the programmatic needs will be the way forward. The availability of data related to indicators will improve tremendously through a dialogue aimed at harmonising surveys undertaken by different agencies. Some

surveys that cover different thematic areas run the risk of duplicating information sought from different purposively selected sub-populations. Internal consistency within each questionnaire can be improved by linking questions based on cause of hospitalisation/outpatient visits with the household-level health information where questions on specific illness were asked. Specific instances of changes in existing surveys through re-categorisation of responses as well as possibilities of streamlining survey questionnaires through improving upon minor inconsistencies of the schedules will be discussed in the concluding session.

IV. CONCLUSION

In light of the discussion in the previous section, this paper suggests two sets of recommendations. The first will offer modifications to the existing collection tools so that data that are better aligned with the NIF can be regularly made available. The second set of recommendations will offer realistic modifications to the health and nutrition indicators of the NIF so that the framework itself is aligned with available data sources in the country.

Of all the indicators under category 1 for which relatively better data are available, barring three that deal with HRH and health spending, all others are sourced directly from NFHS. Apart from mortality and fertility indicators, NFHS gives district-level estimates for all indicators within this group. It is imperative for tracking India's health and nutrition performance that NFHS surveys are conducted every three years, and delays similar to the one between NFHS-3 and 4 do not happen again.

Based on the analysis of the indicators and questions corresponding to each indicator, it is clear that even for many indicators under category 1, current surveys can only furnish reliable estimates at the state level, and sub-state estimates suffer from large sampling errors. If the decision by the MoHFW to enhance the periodicity of NFHS to every three years[43] is indeed implemented, the sample size can also be enhanced further to enable production of robust district-level estimates for important indicators under

this category. In a similar vein, an initiative driven by MoSPI at the centre is needed to pool either state and central samples or statistics furnished via both the samples. NITI Aayog's Three-Year Action Agenda suggests an agency at the centre to collate and disseminate district-level data, comparable across states.[44] Pooling of central and state NSS samples can be one of the first initiatives for such an agency to undertake, given the enormous amounts of money spent on collecting the state sample, which is seldom used. For example, the 66th Round of CES had all participating states, other than Gujarat, collecting information from at least an equal number of households as the central sample.[45]However, to obtain reliable estimates for certain low prevalence diseases even at the state level, the use of confidence intervals arrived at using statistical methods can facilitate indicator tracking.

Suggestions for indicators of category 2 are mostly specific on streamlining existing surveys. The procedures through which the current surveys can address the data needs triggered by the draft NIF are diverse. A question on individual consumption of food, tobacco products, and alcohol (consumed inside and outside the house) along with itemised expenditure for a uniform recall period across rounds will be useful. Revising the broad international classification of diseases to incorporate diseases focused in SDG indicator framework (viz. malaria, TB, NTDs) as separate categories within the ICD framework will be useful in generating information on indicators. Planning a small module focusing on NCDs in the biomarker survey of NFHS furnishing information on medication will add tremendous value. This is also advisable given the changing profile of diseases in the context of the demographic and epidemiological transition. Consistent ailment coding will facilitate inter-temporal comparisons and target-tracking.

Current surveys do not capture the quantity of alcohol consumption. Adding a simple question on this will enable characterising alcohol consumption. However, defining "harmful use" of alcohol is left for countries to contextualise based on availability and quality apart from behavioural attributes. It needs to be borne in mind that routine surveys on health may not be able to collect information on substance abuse

because of the stigma attached to their use. Particularly in cultures where reporting on alcohol/smoking tobacco use by women could be stigmatising, reliability of collected data may suffer. Nevertheless, emulating the Global Adult Tobacco Survey by WHO on tobacco consumption along with other substance abuse on regular basis can be considered with larger sample size to obtain disaggregation.

Deaths due to road accidents, unintentional poisoning and suicides are areas with scanty information in the surveys. The causes of death can be re-categorised within existing instruments, or more detailed information can be collected via modules on the dead within individual surveys. This does not undermine the importance of CRS, which is possibly the best source for producing the vital statistics such as this. Inclusion of better information regarding consumption expenditure in health surveys is also desirable and can facilitate estimation of impoverishment due to health payments/OOP expenditure.

Category 3 has indicators that need redefining based on the objective for which they need to be obtained. There are indicators that have greater annual variability, which can better be explored through rapid assessment surveys. Some indicators covering rarely occurring events could be explored through cohort studies or through employing the indirect estimation techniques. The former solution can be applied for vector-borne diseases including malaria and NTDs. The latter, however, pertains to mortality estimates (maternal deaths, deaths due to NCDs), and fertility estimates (adolescent birth rate). It is also worth considering that the indicators on mortality due to NCDs and on the population requiring interventions for the treatment of the NTDs be replaced with morbidity-related indicators, given the feasibility of generating these with minor tweaks within existing household surveys.

GENERAL RECOMMENDATIONS

Revising the classification of diseases in the national surveys to incorporate diseases focused on the SDG indicator framework is

important. In addition, having NSS morbidity rounds on the ground for a year, rather than six months as done now, will curtail the seasonality bias. NSS may also add a separate question on the common NTDs that can then be linked to healthcare utilisation, so that morbidity as well as economic burden can be easily estimated. In addition, an NSS module on health, covering specific morbidities, can be canvassed with yearly rounds.

While the sampling errors are important and should be addressed, the non-sampling errors that creep into large-scale surveys due to lengthy schedules, large sample size to ensure geographic coverage, and non-response should be addressed. Further, quality of sensitive information such as tobacco use and alcohol consumption will improve if questions are asked to respective individuals rather than the head of the household in the household questionnaire.

Information from the morbidity modules cannot be used to estimate incidence rates, as it is based on lay reporting. Similarly, many respondents might not know the names of the disease for which symptoms were presented and treatment was sought. Some layer of conformity to the self-reported morbidity will make the information more robust. However, supplementing self-reported illness with information on diagnosis/ medication does not reflect actual prevalence as diagnosis/ medication is largely conditioned by access and programme coverage. Thus, cautious combinations of such complementary information can provide a better view of the disease situation.

Additionally, to make the statistics on OPD and IPD visits representative at the district level, it is worthwhile to consider pooling of central and state samples. If the poolability of the centre and state sample is not viable due to the structural issues in the data construct, then generating sub-state estimates from the matching sample of the state is recommended, provided synchronicity can be established. Further, indicators can be developed by judiciously combining statistics from NSS state samples and Census-based indirect estimates, especially for indicators that are not amenable to direct estimations.

Regarding NFHS, while working with the district-level survey design, experts must be engaged to explore options, within ethical limits, to allow codes and weights to districts, blocks and households for clubbing them to enable some level of parliamentary constituency-level analysis. Having constituency-level health and nutrition indicators can be an important step towards a re-prioritisation of public policy.

Given that the SDG indicators are meant to monitor inequity, it is important to recognise that the known axes of inequity such as gender, class and socioeconomic status need to be monitored. For that reason, the obtained estimates must be robust for time series comparisons, especially when concerning indicators that are declining, resulting in events getting rarer (which might result in existing sample yielding estimates with wide confidence intervals). In such cases, care should be exercised to revise the sample frame for routine sample surveys at adequate frequency to enable reliable comparisons.

Specific Recommendations towards Modifying Surveys:

- In the NSS morbidity round, adding a question on sector (Urban/Rural), to reflect the location of the healthcare facility where care is sought will yield valuable information for analysis. NFHS too should start collecting information on the location of the facility. The current urban/rural disaggregation is based on the location of the household.

- In the NSS employment round, it will be useful to have nurses and midwives as separate codes, rather than a combined code. This can be done for the Census as well.

- In the NSS employment round as well as the Census, adding a separate code for "community health workers," given their prominent role in the delivery system.

- Within CES, adding a question on individual consumption of food, tobacco products, and alcohol (consumed inside and outside the

house) along with itemised expenditure for a uniform recall period across rounds.

- Avoiding proxy reporting for behavioural attributes.

- Harmonising the codes of the question on health insurance between NSS and NFHS to make the information collected comparable.

- Adding questions in relevant national surveys to enable estimation of Prevalence of Undernourishment (PoU) and food insecurity at sub-national levels.

- In the NSS morbidity survey, asking a question on Malaria with a one-year recall, which can provide information that can be cross-checked with the IPD/OPD modules.

- In the NSS morbidity survey, asking a question on Dengue with a one-year recall, which can provide information that can be cross-checked with the IPD/OPD modules.

- In the NSS morbidity survey, asking a question on Hepatitis with a one-year recall, which can provide information that can be cross-checked with the IPD/OPD modules.

- Within the NFHS household questionnaire, adding questions on Malaria, Dengue and Hepatitis.

- Within the NSS morbidity schedule, modifying the "nature of ailments" codes to collect separate information on Malaria (currently fused with other fevers).

- Within the NSS morbidity schedule, modifying the "nature of ailments" codes to collect separate information on Dengue (currently not collected).

- Within the NSS morbidity schedule, modifying the "nature of ailments" codes to collect separate information on Hepatitis. Currently, the working definition of Jaundice within NSS morbidity round clarifies that it includes Hepatitis as well.

- Within the NSS morbidity schedule, modifying the "nature of ailments" codes to collect separate information on Chikungunya, to enable study of its economic burden.

- Modifying the answer codes of question no. 76 in the NFHS household questionnaire to collect information on accident, violence, poisoning, homicide and suicide separately. Category of poisoning can be changed to "unintentional poisoning" to avoid overlap with suicide. Category of "accidents" can be split to "road traffic accidents" and "other accidents" for collecting data aligned with the NIF.

- Adding a question in NFHS on the quantity of alcohol consumed.

- Modifying NSS morbidity round's "nature of ailment" coding to separate accidental injury, road traffic accidents and falls.

- Adding a separate question in NFHS on the coverage of the pentavalent vaccine.

- The wealth-related questions that is an important marker of socioeconomic status in NFHS should be reframed in keeping with development context and comparability. For instance, availability of chair and table are perhaps now a weak marker to categorise households in different wealth quintiles.

- After consultation with experts, national surveys should have questions on physical activity, disability, and mental health.

The second set of recommendations is in the form of a modified NIF, based on the discussion in section III.

Table 1: A Proposed National Indicator Framework for Health and Nutrition, Covering Select Indicators

TARGETS	Draft National Indicator Framework (NIF)	PROPOSED NIF
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	Indicator 2.1.1: Prevalence of undernourishment	Low BMI for adults Underweight for children below five
	Indicator 2.1.2: Prevalence of moderate or severe food insecurity based on FIES	Indicator 2.1.2: Prevalence of moderate or severe food insecurity based on FIES
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	Indicator 2.2.1: Prevalence of stunting (children under five years of age)	Indicator 2.2.1: Prevalence of stunting (children under five years of age)
	Indicator 2.2.2: Prevalence of wasting (children under five years of age)	Indicator 2.2.2: Prevalence of wasting (children under five years of age)
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	Indicator 3.1.1: Maternal mortality ratio	Indicator 3.1.1: Maternal mortality ratio
	Indicator 3.1.2: Proportion of births attended by skilled health personnel	Indicator 3.1.2: Proportion of births attended by skilled health personnel
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	Indicator 3.2.1: Under-five mortality rate	Indicator 3.2.1: Under-five mortality rate
	Indicator 3.2.2: Neonatal mortality rate	Indicator 3.2.2: Neonatal mortality rate
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	Indicator 3.3.1: Number of new HIV infections per 1,000 uninfected population	Indicator 3.3.1: Number of new HIV infections per 1,000 uninfected population
	Indicator 3.3.2: TB incidence per 100,000 population	Indicator 3.3.2: TB incidence per 100,000 population

	Indicator 3.3.3: Malaria incidence per 1,000 population	Indicator 3.3.3: Malaria incidence per 1,000 population
	Indicator 3.3.4: Viral hepatitis (including A, B, C, D, E) incidence per 100,000 population	Children age 12–23 months who have received three doses of hepatitis B vaccine (%)
	Indicator 3.3.5: Number of people requiring interventions against neglected tropical diseases (dengue, chikungunya, kala-azar, leprosy, lymphatic filariasis, soil transmitted helminths, v. leishmaniasis)	Indicator 3.3.5: Number of people who sought IPD/OPD care in the last one year/15 days for dengue
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	Indicator 3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	Indicator 3.4.1: Morbidity rates for: a) Blood sugar level: high (>140 mg/dl) (%) b) Hypertension Slightly above normal (Systolic 140–159 mm of Hg and/or Diastolic 90–99 mm of Hg) (%) c) Self-Reported Cancer d) Self-Reported heart disease
	Indicator 3.4.2: Suicide mortality rate	Indicator 3.4.2: Morbidity attributable to mental disorders
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	Indicator 3.5.1: Coverage of treatment interventions (pharmacological, psychosocial, and rehabilitation and aftercare services) for substance use disorders	Indicator 3.5.1: Proportion of households reporting ganja and "other drugs" (NSS)
	Indicator 3.5.2: Harmful use of alcohol (aged 15 years and above) within a calendar year in litres of pure alcohol	Indicator 3.5.2: Proportion of people usually drinking hard liquor and drinking almost every day (NFHS)

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	Indicator 3.6.1: Death rate due to road traffic injuries	Indicator 3.6.1: Morbidity attributable to road traffic accidents.
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	Indicator 3.7.1: Proportion of women (aged 15–49 years) who have their need for family planning satisfied with modern methods	Indicator 3.7.1: Proportion of women (aged 15–49 years) who have their need for family planning satisfied with modern methods
	Indicator 3.7.2: Adolescent birth rate (aged 15–19 years)	Indicator 3.7.2: Women (aged 15–19 years) who were already mothers or pregnant at the time of the survey (%)
	Indicator 3.7.3: Proportion of deliveries attended by skilled health personnel	Repeat Indicator. Dropped.
	Indicator 3.7.4: Proportion of institutional deliveries	Indicator 3.7.4: Proportion of institutional deliveries
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Indicator 3.8.1: Proportion of women (aged 15–49 years) who have their need for family planning satisfied with modern methods	Repeat Indicator. Dropped.
	Indicator 3.8.2: Percentage of women (aged 15–49) with a live birth in a given reference period who received ANCs four times or more	Indicator 3.8.2: Mothers who had full antenatal care (at least four antenatal visits, at least one tetanus toxoid injection, and took iron folic acid tablets or syrup for 100 or more days)
	Indicator 3.8.3: Percentage of children (aged 12–23 months) who received three doses of pentavalent vaccine before their first birthday	Indicator 3.8.3: Children (aged 12–23 months) fully immunised (BCG, measles and three doses each of polio and DPT) (%)

	Indicator 3.8.4: Percentage of children with suspected Pneumonia (cough and difficulty breathing, not due to problem in chest or blocked nose) in the two weeks preceding the survey who sought care from appropriate health facility or provider	Indicator 3.8.4: Percentage of children with ARI in the last two weeks preceding the survey (%) who sought care
	Indicator 3.8.5: Percent TB cases treated (cured plus treatment completed) among those notified to the health authorities during a specified period	Indicator 3.8.5: Proportion of people suffering from TB, medically treated.
	Indicator 3.8.6: Percentage of PLHIV currently receiving ART among detected number of children and adults living with HIV	Indicator 3.8.6: Percentage of PLHIV currently receiving ART among detected number of children and adults living with HIV
	Indicator 3.8.7: Percentage of population in malaria-endemic areas who slept under an ITN the previous night **and/or** percentage of population at risk protected by IRS during a specified time period	Indicator 3.8.7: the proportion of households that have an insecticide treated net
	Indicator 3.8.8: Percentage of population using safely managed drinking water and safely managed sanitation services	Dropped.

	Indicator 3.8.9: Proportion of population (18 years and older) who are currently taking antihypertensive medication among the number of adults (18 years and older) who are taking medication for hypertension with systolic blood pressure >= 140 mmHg, or with diastolic blood pressure >=90mmHg	Indicator 3.8.9: Proportion aged 18 years and above) taking antihypertensive medication among total population (aged 18 years and above) with systolic BP >= 140 mmHg or with diastolic BP >=90mmHg
	Indicator 3.8.10: Proportion of population (18 years and older) who are currently taking medication for diabetes (insulin and glycaemic control pills) among numbers of adults (18 years and older) who are taking medication for diabetes or with fasting plasma glucose >=7.0 mmol/L	Indicator 3.8.10: Of those reporting diabetes, the proportion who seek treatment
	Indicator 3.8.11: Proportion of women (aged 30–49) who reported ever screened for cervical cancer to the total women (aged 30–49) screened for cervical cancer in the last five years	Indicator 3.8.11: Women (aged 30–49 years) who have ever undergone examinations of breast
	Indicator 3.8.12: Age-standardised prevalence of tobacco use among persons aged 15 and above	Repeat Indicator. Dropped.
	Indicator 3.8.13: Number of OPD visits per person per year **and** IPD admission rate per 100 population per year	Indicator 3.8.13: Number of OPD visits per person per year and IPD admission rate per 100 population per year
	Indicator 3.8.14: Total physician, nurses and midwives per 1,000 population	Indicator 3.8.14: Total physician, nurses and midwives per 1,000 population

	Indicator 3.8.15: Percentage of health facilities with essential medicines and lifesaving commodities	Indicator 3.8.15: Percentage of people reporting ailments who didn't choose government hospitals, because "required specific services not available" or "available but quality not satisfactory"
	Indicator 3.8.17: Poverty headcount due to OOP expenditure on health	Indicator 3.8.17: Poverty headcount due to OOP expenditure on health
	Indicator 3.8.18: OOPs on healthcare	Indicator 3.8.18: OOPs on healthcare
	Indicator 3.9.1: Mortality rate due to household/ambient air pollution	Indicator 3.9.1: Proportion of respondents reporting Asthma
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Indicator 3.9.2: Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene	Indicator 3.9.2: Prevalence of diarrhoea (reported) in the last two weeks preceding the survey (%)
	Indicator 3.9.3: Mortality rate attributed to unintentional poisoning	Indicator 3.9.3: Percentage of households reporting morbidity due to poisoning (NSS)
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	Indicator 3.a.1: Age-standardised prevalence of current tobacco use among persons aged 15 years and above	Indicator 3.a.1: Age-standardised prevalence of current tobacco use among persons aged 15 years and above

3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	Indicator 3.b.1: OOP expenditure on health	Repeat Indicator. Dropped.
	No indicator in the NIF	Indicator 3.b.2: Percent of households incurring large expenditure on drugs
3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	Indicator 3.c.1: Total physicians, nurses and midwives per 10,000 population	Repeat Indicator. Dropped.
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Indicator 6.1.1: Proportion of population using safely managed drinking water services	Dropped.
	Indicator 6.1.2: Proportion of population using an improved drinking water by source	Indicator 6.1.2: Households with an improved drinking-water source
6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	Indicator 6.2.1: Proportion of population using safely managed sanitation services, including a handwashing facility with soap and water	Dropped.
	Indicator 6.2.2: Percentage of population using basic sanitation services	Indicator 6.2.2: Households using improved sanitation facility (%)

In the past, there have been suggestions to integrate existing sample surveys in India coming from the former chairperson of the National Statistical Commission. Making sure that the raw data from surveys are available for analysis is important and the government, if necessary, can leverage the Collection of Statistics Act of 2008.[46] With universalisation of birth and death registration and better surveillance, many fundamental challenges based on the dependence on sample surveys will disappear. However, in the interim, optimising India's capacity to track its health and nutrition targets will depend on how the country's national surveys are streamlined, so they can have the potential to provide robust estimates of population health and nutrition at the district level. The recommendations made in this paper should help harness that potential, and enable regular tracking of district-level health and nutrition indicators. ORF

Annexure

Categorisation and Analysis of Health and Nutrition Indicators from the National Indicator Framework

TARGETS	NATIONAL INDICATOR FRAMEWORK	SDG Indicators	Survey & Schedule questions/Biomarker and estimation	DISCUSSION	PROPOSED ACTION	PROPOSED NIF	Authors' classi-fication of indicators
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	Indicator 2.1.1: Prevalence of undernourishment	Indicator 2.1.1: Prevalence of undernourishment	NSSO's consumer expenditure survey schedule 1.0	NFHS's information on low BMI for adults Underweight for children below 5	Using low BMI for adults Underweight for children below 5	Using low BMI for adults Underweight for children below 5	Second
	Indicator 2.1.2: Prevalence of moderate or severe food insecurity based on FIES	Indicator 2.1.2: Prevalence of moderate or severe food insecurity	Data being generated via a module on the FIES under the Comprehensive National Nutrition Survey (CNNS), which is currently ongoing	CNNS has a module on FIES. Results awaited.	Exploring ways of making FIES part of the national surveys	NO CHANGE	Third
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	Indicator 2.2.1: Prevalence of stunting (children under 5 years of age)	Indicator 2.2.1: Prevalence of stunting (children under 5 years of age)	Biomarker Schedule within the National Family Health Survey, MoHFW, Govt. of India. All children age 0-5 years are eligible to have their height and weight measured. Estimated based on the WHO reference group standards for stunting classification for height and age of the children.	NFHS-IV at the district level for all disaggregation	NONE	NO CHANGE	First
	Indicator 2.2.2: Prevalence of wasting (children under 5 years of age)	Indicator 2.2.2: Prevalence of malnutrition among children under 5 years of age, by type (wasting and overweight)	Biomarker Schedule within the National Family Health Survey, MoHFW, Govt. of India. All children age 0-5 years are eligible to have their height and weight measured. Estimated based on the WHO reference group standards for wasting for height and age of the children.	NFHS-IV at the district level for all disaggregation	NONE	NO CHANGE	First

Target	Indicator	Indicator name	Description	Data source	Recommendations		Priority
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	Indicator 3.1.1: Maternal mortality ratio	Indicator 3.1.1: Maternal mortality ratio	Obtained from SRS that estimates MMR using the direct methods of analysing recorded deaths and number of live birth in a period of three years through dual-recording system	1. SRS remains the usual source 2.MMR can possibly be also estimated using sisterhood methods for which NFHS can start collecting data on siblings history (name, sex, DoB, survival status and age of death , if dead) for each sibling born to the same mother into the existing 'SURVIVORSHIP MODULE' of HH questionnaire. This can be used to estimate mortality ratios based on information on age at death and whether pregnant at the time of death. With the levels of fertility rate India has, this may be a feasible method.	1. Strengthening CRS remains the only option for sub-state MMR numbers. 2. Detailed recording of the survivorship information (Sisterhood method in the women's indicators) in the NFHS surveys for making indirect estimation possible. 3. SRS should provide MMR for smaller states, either by enhancing samples by pooling in data from more years. 4. Disaggregation across socio-economic categories like literacy needed. For mortality indicators, CRS as a source of data at the district level needs to be parallel developed at least for states with a high coverage of death registration. Statistics disaggregated across basic socio-economic categories needs to be made available.	NO CHANGE	Second
	Indicator 3.1.2: Proportion of births attended by skilled health personnel	Indicator 3.1.2: Proportion of births attended by skilled personnel	Women schedule of the National Family Health Survey, MoHFW, Govt. of India collects information coded under section related to 'assistance at delivery'.	NFHS-IV at the district level for all disaggregation	NONE	NO CHANGE	First
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as 25 per 1,000 live births	Indicator 3.2.1: Under-five mortality rate	Indicator 3.2.1: Under-five mortality rate	From the women schedule of the National Family and Health Survey, MoHFW, Govt. of India collects information coded under the section related to 'birth history'. The rates are estimated using demographic estimation techniques based on the survival information of all the children to a women. SRS also provides information on NNMR at the state level based on a sample survey.	NFHS-IV with limited geographical disaggregation (only possible at the national and state level) For mortality indicators, CRS as a source of data at the district level needs to be parallel utilised, at least for states with a high coverage of death registration. Statistics disaggregated across basic socio-economic categories needs to be made available.	NFHS surveys are planned to be repeated every three years, larger sample size will be required to estimate U5MR at the district level	NO CHANGE	First

					First	Second
	Indicator 3.2.2: Neonatal mortality rate	Indicator 3.2.2: Neonatal mortality rate	From the women schedule of the National Family and Health Survey, MoHFW, Govt. of India collects information coded under the section related to 'birth history'. The rates are estimated using demographic estimation techniques based on the survival information of all the children to a women. SRS also provides information on USMR at the state level based on a sample survey.	For mortality indicators, CRS as a source of data at the district level needs to be parallelly utilised, at least for states with a high coverage of death registration. Statistics disaggregated across basic socio-economic categories needs to be made available.	NFHS-IV with limited geographical disaggregation (only possible at the national and state level) NFHS surveys are planned to be repeated every three years, larger sample size will be required to estimate NMR at the district level	NO CHANGE
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	Indicator 3.3.1: Number of new HIV infections per 1,000 uninfected population	Indicator 3.3.1: Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	Model based estimates generated from sentinel surveys done off the treatment sights among the high-risk population. The Regular national and state level estimates are unavailable. NFHS also has biomarker component on HIV testing. However, data representativeness need to be ascertained to determine robustness of estimates at national and state level.	Model-based estimates furnished by regular behavioural surveys, sentinel surveillance by MoHFW, are available only at national level, very limited disaggregations, surveys conducted only on selective populations (FSW, MSM, Truckers, IDU & transgenders). Although NFHS surveys has biomarker component on blood sample collection for testing HIV, but it was canvassed only in a sub-sample at the state level. If the information on HIV incidence can be provided through biomarker surveys then taking a call on whether including HIV testing in the future biomarker surveys under NFHS is important. Although other source of data which can possibly be used at disaggregated levels could be Mother-To-Child-Transmission (MTCT) rates generated from the institutional data on ANC check-up. NFHS says: "NFHS-4 will provide information on HIV prevalence for women age 15-49 and men age 15-54 at the national level and overall state-level estimates for 11 groups of states/UTs. " " As in NFHS-3, the HIV prevalence estimates from the survey will be used to calibrate the HIV estimates that are based on sentinel surveillance data."	Estimates by MoHFW, Govt. of India on MTCT infections per 1000 at disaggregation levels using routine ANC check-up institutional records at disaggregation levels NFHS also has biomarker component on HIV testing. However, data representativeness need to be ascertained to determine robustness of estimates at national and state level. District level estimates may not be feasible due to small sample size Special surveys for HIV testing and incidence mapping may be required	No. of new HIV infections per 1000 uninfected population at national level and/or MCTC routine can be additionally used to get disaggregated data

Indicator 3.3.2: Tuberculosis incidence per 100,000 population	Indicator 3.3.2: Tuberculosis incidence per 100,000 population	Regular survey based information unavailable. Programme estimates are available from RNTCP, MoHFW, Govt. of India. NFHS and NSSO also provides self-reported information on TB among household members. However, data quality and representativeness need to be ascertained to determine robustness of estimates at national and state level. District level estimates may not be feasible due to small sample size.	For Tuberculosis (TB) the incidence rate is generated based on case finding & notification statistics (for public and private sector) which is part of programme data, and private sector coverage is a challenge. The NSSO and NFHS records self/lay-reported TB cases among household members Even if we accept household survey reporting as a proxy for burden of TB, then also limited disaggregation due to low frequency will pose a problem. Both NFHS and NSSO can give state-level estimates of self reported TB	1. The information from NSSO and NFHS surveys be substantiated with a rigous module on type of treatment, evaluation of card and test reports. 2. Pooling of NSSO central and state sample can provide more robust estimates of self reported TB at the state level.	NO CHANGE	Second
Indicator 3.3.3: Malaria incidence per 1,000 population	Indicator 3.3.3: Malaria incidence per 1,000 population	NSSO has data on morbidity due to Malaria. NSS data representativeness need to be ascertained to determine robustness of estimates at the state level. Estimates are not feasible for district level. The estimates may suffer from seasonality bias as malaria is mostly reported during monsoon and post-monsoon period.	NVBDCP data reports are deemed incomplete as they do not cover the private sector. The reported diagnosis and/or symptom for which IPD and OPD care was sought as 'nature of ailments' can be used to ascertain incidence of Malaria if a separate code other than 'all other fevers' is given for malaria. The estimates may suffer from seasonality bias as malaria is mostly reported during monsoon and post-monsoon period. Coding of malaria along with other diseases caused by mosquito-bite should be carefully done. Rapid malaria-specific surveys may be preferable for robust estimates.	1. Revising the classification of diseases in the national surveys to incorporate diseases focused in SDG indicator framework is important. 2. Having a separate code for Malaria into the codes for "nature of ailment" needs to be canvassed for "nature of ailment" uniformly across srnuveys. 3. Having NSSO health surveys on ground for a year will curtail the seasonality bias. 4. Instead of having relying on lay-reporting, it would be better to ask question on malaria upfront in the demographic block and then linking the question to the nature of ailment for which the IPD/OPD care was sought in the same survey will provide a layer of confirmation	NO CHANGE	Third
Indicator 3.3.4: Viral Hepatitis (including A, B, C, D, E) B incidence per 100,000 population	Indicator 3.3.4: Hepatitis B incidence per 100,000 population	Not available	Available from the NVBDCP data on district-wise case fatality rate and incidence. However, it is incomplete as it does not cover provisioning of diagnostics and treatments in the private sector.	Since the incidence is reported for the 1 lakh population which will be problematic in sampling for generating statistics through sample surveys. Therefore, routine surveillance alone can fetch the information for this indicator. Immunization coverage can be used instead as a proxy for risk.	Children age 12-23 months who have received 3 doses of Hepatitis B vaccine (%)	Third

	Indicator 3.3.5: Number of people requiring interventions against neglected tropical diseases (Dengue, Chikungunya, Kala-azar, Leprosy, Lymphatic Filariasis, Soil Transmitted Helminths, V. Lieshmaniasis)	Indicator 3.3.5: Number of people requiring interventions against neglected tropical diseases	Obtained either from the NVBDCP or from the social consumption of health survey inclusion of NSSO, information regarding nature of ailment is coded for any case of hospitalization (in last 1 year) and outpatient care visit (in last 15 days). Thus direct estimates can be obtained based on recorded cases. As an emerging disease causing considerable morbidity/mortality burden, Dengue can be tracked. In NSSO, in the nature of ailment variable, apart from "all other fevers", Dengue must be captured separately with a separate code.	Available from the NVBDCP data on district-wise health surveys under nature of ailments for which the IPD/OPD care is sought. 1. Having a separate code of diseases in NSSO who sought IPD/OPD care in last 1 year/15 days for Dengue 2. NSSO surveys will be effective in capturing seasonal outbreak if they are on ground for a year, overcoming the seasonality bias. Government can also conduct rapid assessment of the burdens during outbreaks through rapid household surveys conducted in the endemic areas of through sentinel surveys. 3. An NSSO module on health covering specific morbidities can get canvassed with each yearly round	Number of people who sought IPD/OPD care in last 1 year/15 days for Dengue	Third
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases, cancer, diabetes or chronic respiratory disease through prevention and treatment and promote mental health and well-being	Indicator 3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	Indicator 3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	Estimation based on indirect methods by analyzing information on recorded deaths and causes as collected by Sample Registration Systems.	Only SRS MCCD surveys can give data on causes of death through HH surveys. However, if the goal is to reduce the burden of NCDs, then taking the second-best available statistics on 'morbidity due to NCDs' instead of mortality is a feasible option. Causes of death data may become redundant if we pool 7 years' data to get state estimates.Rates for diabetes and high blood pressure can be used as proxy for risk, provided by NFHS. Additionally, Self reported cancer, asthma and heart disease number for men and women can be normal from NFHS	Blood sugar level - high (>140 mg/dl) (%) Hypertension Slightly above normal (Systolic 140-159 mm of Hg and/or Diastolic 90-99 mm of Hg) (%) Self Reported Cancer Self Reported heart disease	Third
	Indicator 3.4.2: Suicide mortality rate	Indicator 3.4.2: Suicide mortality rate	Not available	National Crime Records Bureau (NCRB) is the only source of data on suicide mortality. The NCRB data is incomplete given that there are substantial definitional issues on suicide. Thus relying on SRS-MCCD based on Verbal Autopsy (VA) is the only way to obtain this. However, causes of death data may become redundant if we pool 7 years' data to get state estimates. Alternatively, we can use NSSO morbidity surveys to get disease burden under " mental disorders " at the state level Use NSSO morbidity surveys to get disease burden under ' mental disorders ' at the state level OR NFHS HH questionnaire has a question "Was the death in the family due to an accident, violence, poisoning, homicide or suicide?" - which can be used to estimate this indicator, if the data can be collected for these categories separately.	Morbidity attributable to the mental disorders (NSSO)	Third

3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	Indicator 3.5.1: Coverage of treatment interventions (pharmacological, psychosocial & rehabilitation & aftercare services) for substance use disorders	Indicator 3.5.1: Coverage of treatment interventions (pharmacological, psychosocial & rehabilitation & aftercare services) for various sub-samples like inmates of prison, housewives, addicts under rehabilitative care and substance abusers. Routine treatment data on Drug De-Addiction Programme (DDAP) available from 122 centers functional since 2006 in India	Survey data available through a household survey named 'national survey on extent, pattern and trends of drug abuse in India' in 2004. Survey of Drugs and Crime (UNODC). There are some routine data available from 122 centres offering interventions on Drug De-Addiction Programme (DDAP), Ministry of Health and Family Welfare.	One survey titled 'National Survey on Extent, Pattern and Trends of Drug Abuse in India' was done in 2004 by Ministry of Social Justice and Empowerment (GoI) and the United Nations Office of Drugs and Crime (UNODC). There are some routine data available from 122 centres offering tracking. There is also scope of expanding Drugs Abuse Monitoring Systems (DAMS) to all the districts to furnish data.	The routine information on treatment coverage for substance abuse can be generated regularly from the 122 centres offering services across India on the regular basis. These can also be tailored to furnish data that enable target-tracking. There is also scope of expanding Drugs Abuse Monitoring Systems (DAMS) to all the districts to furnish data.	Proportion of households reporting substance use	Third
			Coverage of private sector will be a major challenge.	In the short term, NSSO consumption expenditure rounds provides information on HH consumption on ganja and other drugs. Pooling of state and central sample can give sub-state estimates			
			NSSO consumption expenditure rounds provides information on HH consumption on ganja and "other drugs".				
	Indicator 3.5.2: Harmful use of alcohol (aged 15 years and older) within a calendar year in litres of pure alcohol	Indicator 3.5.2: Harmful use of alcohol (aged 15 years and older) within a calendar year in litres of pure alcohol	The National Family Health Survey record information on drinking habits including frequency and type of alcohol to eligible men and women. NSSO: Quantity consumed in a month in the consumer expenditure survey.	A survey titled 'National Survey on Extent, Pattern and Trends of Drug Abuse in India was done in 2004 by Ministry of Social Justice and Empowerment (GoI) and the United Nations Office of Drugs and Crime (UNODC). Since the continuity of such one-off surveys is questionable, it is wiser to streamline the construction of data on the regular surveys. (The NFHS and NSS). NFHS asks a question on alcohol consumption to men and women eligible for regular investigation and NSSO records consumption in the consumer expenditure surveys. NFHS: (asked to men and women) about their drinking habits including frequency and type of alcohol and NSSO: Quantities consumed by HH in a month. NFHS records the frequency and type of alcohol but not quantity. NSSO surveys are likely to underestimate because of underreporting as well as poor recording of consumption outside home. LASI survey has plans to capture information on alcohol consumption and alcohol content in quantity but it is going to an elderly survey. The available information in NFHS can be optimally used to derive the indicator, till we have reliable data that can be disaggregated	Defining harmful use by restricting type and/or frequency (proxy for quantity). NFHS and NSS can then revise questions regarding alcohol consumption respectively. NFHS: To include question on quantity along with frequency and type of alcohol consumption. NSS: to include individual consumption of alcohol and tobacco products in a separate module to record consumption of food, tobacco and liquor (in the house and outside) by individuals. The NIF indicator can be the proportion of people usually drinking hard liquor and drinking almost every day	Proportion of people usually drinking hard liquor and drinking almost every day.	Third

Target	National Indicator	Global Indicator	Data Source			Status	Priority
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	Indicator 3.6.1: Death rate due to road traffic injuries	Indicator 3.6.1: Death rate due to road traffic injuries	Not available	No HH survey data are available on death rates other than SRS. SRS causes of death has a category "Unintentional Injuries: Motor Vehicle Accidents " but is redundant if we pool 7 years' data to get state estimates. NSSO's "nature of ailment" across IP and OP can work as a proxy. However, currently, "accidental injury, road traffic accidents and falls" are grouped together as a single variable. Separate data on road traffic accidents will have to be collected.	Cannot be tracked by data generated in the HH surveys. SRS causes of death survey is perhaps the only HH data that be generated with limited disaggregations. Morbidity burden can be tracked instead as a proxy. NSSO's "nature of ailment" across IP and OP can work as a proxy. However, currently, "accidental injury, road traffic accidents and falls" are grouped together as a single variable. Separate data on road traffic accidents will have to be collected.	Morbidity attributable to road traffic accidents.	Third
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	Indicator 3.7.1: Proportion of women (aged 15-49 years) who have their need for family planning satisfied with modern methods	Indicator 3.7.1: Proportion of women (aged 15-49 years) who have their need for family planning satisfied with modern methods	National Family Health Survey, MoHFW, Govt. of India collect information on current use of contraception in the women schedule.	NFHS-IV at the district level for all disaggregation	NONE		First
	Indicator 3.7.2: Adolescent birth rate (aged 15-19 years)	Indicator 3.7.2: Adolescent birth rate (aged 10-14 years; 15-19 years)	Information is recorded under section on birth history in the Family Health Survey. To be estimated after applying demographic estimation techniques to estimate age-specific fertility rates based on the survey data	Since NFHS already provides data on "Women aged 15-19 years who were already mothers or pregnant at the time of the survey (%)", this can act as a credible proxy.	Since NFHS already provides data on "Women age 15-19 years who were already mothers or pregnant at the time of the survey (%)", this can act as a credible proxy.	Women age 15-19 years who were already mothers or pregnant at the time of the survey (%)	First
	Indicator 3.7.3: Proportion of deliveries attended by skilled health personnel	NO INDICATOR IN THE GLOBAL FRAMEWORK	REPEATED from 3.1.1	REPEATED from 3.1.2		NOT REQUIRED; REPEAT INDICATOR	First
	Indicator 3.7.4: Proportion of institutional deliveries	NO INDICATOR IN THE GLOBAL FRAMEWORK	Information is coded under section related to "Place of delivery" given in the women schedule of National Family Health Survey, MoHFW, Govt. of India	NFHS-IV at the district level for all disaggregation	NONE	NO CHANGE	First

Target	National Indicator	Global Indicator	Data Source / Availability	NFHS Status	Recommendation	Proposed Indicator for NIF	Priority
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Indicator 3.8.1: Proportion of women (aged 15-49 years) who have their need for family planning satisfied with modern methods	Indicator 3.8.1: Coverage of essential health services[1]	REPEATED from 3.7.0	REPEATED from 3.7.1		NOT REQUIRED; REPEAT INDICATOR	First
	Indicator 3.8.2: Percentage of women aged 15-49 with a live birth in a give reference period who received ANC four times or more	Indicator 3.8.2: Proportion of population with large expenditures on health as a share of total household expenditure or income	Information is recorded as it is in the women schedule of National Family Health Survey, MoHFW, Govt. of India	NFHS-IV at the district level for all disaggregation	Aligning it with NFHS variable	Mothers who had full antenatal care (at least four antenatal visits, at least one tetanus toxoid (TT) injection and took iron folic acid tablets or syrup for 100 or more days) (%)	First
	Indicator 3.8.3: Percent children aged 12-23 months received 3 doses of pentavalent vaccine before their first birthday	NO INDICATOR IN THE GLOBAL FRAMEWORK	Not available	NFHS-IV at the district level for all disaggregation but need to ask specifically for pentavalent vaccine or the indicator can be revised to include all the essential vaccines that should be given before one year of age.	NFHS surveys contains information on four of the five diseases covered under pentavalent vaccine (Haemophilus influenzae type b (Hib) is not covered). Subsequent waves of NFHS can add measles, and 3 doses each of polio and DPT) this information.	Children age 12-23 months fully immunized (BCG, measles, and 3 doses each of polio and DPT) (%) **Especilllay if full immunization coverage is not part of the final NIF as part of Target 4.2, it should be part of Target 3.8**	Third
	Indicator 3.8.4: Percentage of children with suspected Pneumonia (cough and difficult breathing not due to problem in chest or blocked nose) in two weeks preceding the survey who sought care from appropriate health facility or provider	NO INDICATOR IN THE GLOBAL FRAMEWORK	Not available	NFHS-IV at the district level has data for "% of children with acute respiratory infection (ARI) in the last 2 weeks preceding the survey (%) who sought care"	Change to "% of children with acute respiratory infection (ARI) in the last 2 weeks preceding the survey (%) who sought care"	"% of children with acute respiratory infection (ARI) in the last 2 weeks preceding the survey (%) who sought care"	Third

Indicator						
Indicator 3.8.5: Percent TB cases treated (cured plus treatment completed) among those notified to the health authorities during a specified period	NO INDICATOR IN THE GLOBAL FRAMEWORK	Based on direct estimates of the reported information under RNTCP. However, coverage of the private sector remains a major gap and the programme data alone can't furnish reliable estimates of cure rate.	Programme data remains incomplete. NFHS 4 gives information on morbidity as well as treatment. But the exact information may not be available. NFHS 4 can give the "proportion of people suffering from TB ever treated".	"proportion of people suffering from TB ever medically treated";	Proportion of people suffering from TB medically treated.	Third
Indicator 3.8.6: Percent PLHIV currently receiving ART among detected number of children and adults living with HIV	NO INDICATOR IN THE GLOBAL FRAMEWORK	Based on direct estimates of the reported information under NACO	Data is available only through HIV sentinel surveys (HSS). The data will be available in the program records collated at the state headquarters.	NONE	NO CHANGE	Second
Indicator 3.8.7: Percent population in Malaria-endemic areas who slept under an ITN the previous night **and/or** percentage population at risk protected by IRS during a specified time period	NO INDICATOR IN THE GLOBAL FRAMEWORK	NFHS inquires about whether the household has any mosquito nets. The survey also asks about the type and brand of net	The NFHS gives the use of bed-net use (for the previous night) by members of a family. However the use of bed-nets is not a good indicator to look at the disease burden because of difficulty of comprehending quality of action. Secondly it might suffer from bias in reporting due to seasonal changes. For example endemic regions might suffer from bias in reporting using bed-nets during outbreak but adjoining places might not thus compromising quality of the information. Thus the indicator need to be revised. Whether the household have an insecticide treated net can be found out from NFHS.	A possible indicator can be "the proportion of households that have an insecticide treated net"	"the proportion of households that have an insecticide treated net"	Second
Indicator 3.8.8: Percent of population using safely managed drinking water and safely managed sanitation services	REPEAT	REPEAT			drop the indicator	Third

Indicator						
Indicator 3.8.9 Proportion of population 18 & older who are currently taking antihypertensive medication among number of adults 18 years & older who are taking medication for hypertension with systolic blood pressure >= 140 mmHg, or with diastolic blood pressure >=90mmHg	NO INDICATOR IN THE GLOBAL FRAMEWORK	Specific data is available through NFHS biomarker survey which gives recorded information on blood pressure by measuring on the spot. Three reading are averaged and then used as the final statistic. The information on medication is self-reported.	The information on blood pressure is collected in NFHS-IV surveys in the biomarker questionnaire separately for men and women aged 15-54 along with self-reported use of prescribed drug	Planning a small module focused on NCDs alone in the biomarker survey of NFHS would furnish comprehensive information on medication.	Revise indicator: Proportion aged 18 years & above taking antihypertensive medication among total population aged 18 years & above with systolic BP >= 140mmHg or with diastolic BP >=90mmHg	Second
Indicator 3.8.10 Proportion of population 18 & older who are currently taking medication for diabetes (insulin & glycemic control pills) among numbers of adults 18 years & older who are taking medication for diabetes or with fasting plasma glucose >=7.0 mmol/L	NO INDICATOR IN THE GLOBAL FRAMEWORK	Under the biomarker survey in NFHS, the eligible men and women (who also consented) let their random blood glucose levels be examined and recorded. The information on medication is not asked.	The information on blood sugar levels is available as random glucose levels through NFHS biomarker survey. However, the information on medication is not available.	Planning a small module focused on NCDs alone in the biomarker survey of NFHS would furnish comprehensive information on medication.	Of those reporting diabetes; what proportion seek treatment?	Third
Indicator 3.8.11: Proportion of women aged 30-49 who reported ever screened for cervical cancer to the total women aged 30-49 screened for cervical cancer in the last 5 years	NO INDICATOR IN THE GLOBAL FRAMEWORK	Asked in the women questionnaire to women between 15-49 years. Thus the proportion for the required age group can be estimated.	Proportion of women aged 30-49 ever being examined for cervical cancer is given in NFHS women questionnaire. Re-classifying eligible women from 15-49 to the required age group will give perportion of women ever undergoing a cervix examination. However if the question was to assess the coverage of cancer specific screening then ever percentage ever undergone breast examination would capture the essence as it also the common type of cancer among women.	Women aged 30-49 ever undergone breasts examination by a doctor, which is also available from the NFHS household surveys.	Women Age 30-49 Years Who Have Ever Undergone Examinations of Breast.	Second
Indicator 3.8.12: Age standardized prevalence of tobacco use among persons aged 15+	NO INDICATOR IN THE GLOBAL FRAMEWORK	REPEAT of target 3.a.0	REPEAT of target 3.a.1		NOT REQUIRED;-REPEAT INDICATOR	First

Indicator		Source				
Indicator 3.8.13: Number of OPD visits per person per year **and** IPD admission rate per 100 population per year	NO INDICATOR IN THE GLOBAL FRAMEWORK	NSS surveys on social consumption of health collects information on the usage of OPD and IPD care in th1 last 15 days and 1 year respectively. The statistics can be estimated from that information.	The data is available from the NSSO morbidity survey. However, robust district level numbers may not be available unless central and state samples are pooled		NO CHANGE	Second
Indicator 3.8.14: Total physician, nurses and midwives per 1000 population	NO INDICATOR IN THE GLOBAL FRAMEWORK	Reported in the HMIS	NSSO can give a good enough number, although it is self reported	NSSO employment/unemployment surveys can sharpen the questions to capture health. For example, a separate code for community health workers in Census and NSSO can get better estimates	NO CHANGE	First
Indicator 3.8.15: Percent of health facilities with essential medicines and life saving commodities	NO INDICATOR IN THE GLOBAL FRAMEWORK	Records of centralized disbursal of essential medicine and consumables, MoHFW, Govt. of India	Centralised drug procurement and disbursal records of essential medicines by each state can give infromation at all disaggregation. NSSO offersa good proxy in terms of question "reason for not availing govt. source for treatment"	The data is recorded for the receipt of drug-stocks however it does not record the shortfall of the medicines. Have to clearly define the life saving commodities 1. Recording health facilities with stocks as well as shortfall of essential medicines 2. defining 'life saving' in terms of lists of medicines and consumables Health seeking behaviour by local population can be a good proxy of dependability and quality of public sector.	Percentage of people reporting ailments who didn't choose government hospitals, because "required specific services not available "or "available but quality not satisfactory""	Third
Indicator 3.8.16: Percentage of attributes of 13 core capacities	NO INDICATOR IN THE GLOBAL FRAMEWORK	NA	NA	NA	NA	NA
Indicator 3.8.17: Poverty head count due to OOP expenditure on health	NO INDICATOR IN THE GLOBAL FRAMEWORK	National Sample Survey Office (NSSO), Schedule 25.0: Social Consumption: Health, MoSPI, Govt. of India	Information on all household consumption expenditure is ascertained along with information on out of pocket payments on health in the morbidity rounds. However health rounds do not record consumption data well and its other way round for health expenditure data in the consumer expenditure surveys	Estimation can be done by comparing the survey information out of pocket payments on health along with official poverty line. Comparability of estimates between NSSO Health Surveys and Consumer Expenditure Surveys can be verified	NO CHANGE	First

Target	Indicator	Global Framework	Data Source	Notes	Description	Change	Edition
	Indicator 3.8.18: OOPs on health	NO INDICATOR IN THE GLOBAL FRAMEWORK	National Sample Survey Office (NSSO), Schedule 25.0: Social Consumption: Health, MoSPI, Govt. of India	NSSO can provide this estimate	Information on all out of pocket expenditure is ascertained based on direct and indirect expenditure on health from the morbidity surveys through adjusting for the reference period for IPD and OPD healthcare use	NO CHANGE	First
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Indicator 3.9.1: Mortality rate due to household/ambient air pollution	Indicator 3.9.1: Mortality rate due to household/ambient air pollution	Not available	Data on mortality is difficult to obtain from the household survey for the reason that attribution of death to these causes is difficult unless it is the extreme case. SRS data for the states will be redundant because of delay and the necessity for pooling many years'data. Needs to be revised to morbidity burden. Self reported asthma in NFHS will be a good proxy.	Self reported asthma in NFHS will be a good proxy.	Proportion of men and women reporting Asthma	Third
	Indicator 3.9.2: Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene	Indicator 3.9.2: Mortality rate due to unsafe water, unsafe sanitation and lack of hygiene	Not available	Data on mortality is difficult to obtain from the household survey for the reason that attribution of death to these causes is difficult unless it is the extreme case. SRS data for the states will be redundant because of delay and the necessity for pooling many years'data. Needs to be revised to morbidity burden. Self reported diarrhea in NFHS will be a good proxy.	NFHS Indicator: Prevalence of diarrhoea (reported) in the last 2 weeks preceding the survey (%)	Prevalence of diarrhoea (reported) in the last 2 weeks preceding the survey (%)	Third
	Indicator 3.9.3: Mortality rate attributed to unintentional poisoning	Indicator 3.9.3: Mortality rate attributed to unintentional poisoning	Not available	NFHS HH questionnaire has a question "Was the death in the family due to an accident, violence, poisoning, homicide or suicide?" - which can be used to estimate this indicator, if the data is collected for these categories separately.	the data is collected for these categories separately. In NFHS HH questionnaire separately.	NEW INDICATOR: Percentage of HHs reporting death by poisoning	Third

Target	Indicator					
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	Indicator 3.a.1: Age-standardized prevalence of current tobacco use among persons aged 15 years and older	Indicator 3.a.1: Age-standardized prevalence of current tobacco use among persons aged 15 years and older	National Family Health Survey, MoHFW, Govt. of India has information on tobacco use by the individuals in men and women schedules. NSSO consumption surveys too have information on the consumption of tobacco at the household level.	NFHS has designed questions to find out about the use of types of tobacco use including cigarettes, bidis and chewing tobacco.	Can be estimated for particular age group by combining the men and women files	NO CHANGE	First
3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	Indicator 3.b.1: Out-of-Pocket expenditure on health	Indicator 3.b.1: Proportion of the population covered by all vaccines included in their national programme	REPEATED HERE	REPEATED HERE	REPEATED HERE	NOT REQUIRED; REPEAT INDICATOR 3.8.18	First
	Indicator 3.b.2: Total net official development assistance to medical research and basic health sectors	Indicator 3.b.2: Total net official development assistance to medical research and basic health sectors	Available with the MoHFW, Govt. of India				NA
	NO INDICATOR IN THE NATIONAL FRAMEWORK	Indicator 3.b.3: Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis	NO INDICATOR IN THE NATIONAL FRAMEWORK	NO INDICATOR IN THE NIF However, percent of HH incurring large OOP on drugs can be included keeping in line with the spirit of the affordability rationale of the indicator in the Global framework.	The data on the purposed indicator is available through NSS morbidity surveys	NEW INDICATOR: Percent of Households incurring large expenditure on drugs	Can be included in the draft framework

3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	Indicator 3.c.1: Total physicians, nurses and midwives per 10000 population	Indicator 3.c.1: Health worker density and distribution				NOT REQUIRED: REPEAT INDICATOR 3.8.14	First
3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	Indicator 3.d.1: Percentage of attributes of 13 core capacities [1. National legislation, policy and financing 2. Coordination and national Focal Point Communications 3. Surveillance 4. response 5. Preparedness 6. Risk Communication 7. Human Resources 8. Laboratory 9. Point of entry 10. Zoonotic events 11. Food safety 12. Chemical events 13. Radio nuclear emergencies] that have been attained at a specific point in time	3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness	NA				NA
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Indicator 6.1.1: Proportion of population using safely managed drinking water services	Indicator 6.1.1: Proportion of population using safely managed drinking water services	NSS and NFHS collect data on the source of drinking water. However 'safely managed' needs to defined and recorded seperately.	Difficult to operationalise and hence can be dropped, as the crux of the issue is covered in the next indicator	The phrase 'safely managed' is defined as UN water, which is the nodal agency responsible for developing indicators for water and sanitation, define it to encompass water free from pathogens and toxic chemicals. The problem from keeping this information while collecting data would require testing water for pathogens and presence of chemicals, but can India undertake that kind of testing with the surveys.	Drop the indicator	Third

	Indicator 6.1.2: Proportion of population using an improved drinking water by source	Available from NFHS as well as NSS surveys	Data available from the NFHS and NSSO (CES) surveys can directly be used for target-tracking. NFHS has "Households with an improved drinking-water source"	NFHS has "Households with an improved drinking-water source"	First — "Households with an improved drinking-water source"
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	Indicator 6.2.1: Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	Indicator 6.2.1: Proportion of population using safely managed sanitation services, including hand-washing facility with soap and water	While NSS and NFHS collect data on the sanitation facility, the phrase "safely managed" is difficult to operationalize and currently there is no data available in the system. However, data is gathered on some elements like handwashing and availability of soap and stored water in NFHS but it is based on the observation of the field investigator.	The phrase 'safely managed' needs to be defined to encompass sanitation services that does not contaminate either the ground water or surface water sources. However the data on hand washing facilities is available through NFHS surveys.	The phrase safely managed sanitation needs to be defined and can be included in the regular surveys which can just be the self-reported figures. Drop this Indicator as it is virtually the same as above — Third — drop the indicator
	Indicator 6.2.2: Percentage of population using basic sanitation services	Available from NFHS as well as NSS surveys	Data available from the NFHS and NSSO (CES) surveys can directly be used for target-tracking	Basic sanitation is improved sanitation. NFHScan provide "Households using improved sanitation facility (%)"	First — Households using improved sanitation facility (%)

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