Mortality Surveillance at District Level is an Orphan: Can Indian Medical Colleges Adopt it?

INTRODUCTION

District is the basic unit in India for all administrative aspects including health. While most health programs are centrally driven with standard processes, districts have a scope, though limited, to customize the implementation of these programs. District level data is critical for local planning, be it the estimation of beneficiaries of the program, evaluation of coverage and outcomes, etc.

One of the major health outcomes is mortality. The main rationale for using mortality and causes of death data at district level is that it can be linked to local action. For example, one can look at child and maternal mortality rates, and ascertain their causes to identify local programmatic priorities including identification of high-risk groups to target interventions. One can also detect short-term variations due to outbreaks/heat/pollution and plan timely mitigation measures.[1]

A usable mortality dataset is one that can be used to prepare basic tabulations of deaths by age, and sex to look at age/sex distribution of deaths and their causes-of-death, generate crude and age-sex specific death rates, list major causes-of-death of the population and if possible, disaggregated data by relevant risk-groups.[2] Box 1 describes some good generic mortality surveillance practices for a district.

However, currently, there is no system in place at a district level to look at the cause of death data. At the district level, the only lens through which the death data is looked at is an administrative one - coverage of death registration. The issuance of a death certificate following registration is seen as a part of the public service and is usually linked to the citizen

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Box 1: Good Mortality Surveillance Practices at a District

1. Improve coverage with death registration.
2. Simplify the death registration process, preferably make it online.
3. Implement a system for cause of death ascertainment among non-institutional deaths. (All or a random sample)
4. Standardize procedure for data collection (VA tool and coding procedure)
5. Ensure competent people collect/generate data. (Training in VA/medical certification)
6. Implement quality assurance procedures. (Field supervision and data quality)
7. Streamline data transmission and processing procedures. (e-resource and dashboards)
8. Generates data products that are needed by decision makers. (Major causes of death by key subgroups)
9. Ensure that the data is used for action. (Training of district stakeholders)
10. Review and provide feedback. (Agenda in review meetings)

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services portal. This process does not need cause of death data and is not related to the functioning of the health department. The Ministry of Home Affairs or Revenue Department, the nodal agency for this, is not interested in the cause of death data as it is not relevant to them.

Sources of mortality data in a district and challenges in their use

In a district, cause of death data comes from two routine mortality surveillance sources - lay reporting during death registration and medical certification of cause of death (MCCD) occurring in hospitals. The coverage with MCCD is variable but around 22% nationally.[3] This data is usually processed at a national level and a report is released. The quality of cause-of-death data under lay reporting is poor and largely not usable for any public health planning.[4] District level maternal and child mortality statistics are also measured as a part of the National Family Health Survey.[5] However, this is done once in 5-6 years, and being population based, provides better quality estimates of mortality rates, though not on cause of death.

Many national health programs, such as for TB, HIV, and malaria report deaths among patients on treatment under them. The cause of death is not always ascertained, and it is used more for measuring disease outcomes. Currently, there is a developing interest in the program managers to use verbal autopsies (VA) within their program cohorts to look at their causes of death. This provides an opportunity to explore a wider use of VA to capture non-institutional deaths, through the health system.

There are additional sources of causes of death data collected through a process of verbal autopsy like maternal and death reviews (MDR).[6] and by health and demographic surveillance sites (HDSS). Maternal and Infant Death Reviews (IDR) were introduced to identify medical and social causes using a mix of facility-based clinical reviews and community-based verbal autopsy and social audits. These can assist in planning, implementing, and evaluating the impact of interventions. A review of the progress of the implementation of MDR identified gaps like poor reporting, lack of quality, and findings being not translated into action, thus defeating the whole purpose of the exercise.[7] In 2017, Despite the switch from MDR to Maternal Death and Surveillance Review (MDSR), things have not changed, and these data never come into the public domain.[8]

A HDSS is a geographically defined population under continuous demographic monitoring with timely collection of data on all births, deaths, and migrations.[9] In India,

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Ballabgarh HDSS in district Faridabad has provided data on trends in the cause of death at the population level for children as well as adults.[10,11] Recently there has been an increase in the number of HDSS Sites in India including those funded by ICMR.[12] However, the aspect of mortality surveillance has not been adequately addressed in them. In addition, many medical colleges, as mandated under NMC guidelines, run urban and rural health centers to provide health services to a population often called "field-practice-area". These are often rudimentary and may not even be population based and mortality surveillance is not routinely done. Ballabgarh HDSS is an example of the same site being an HDSS as well as a rural-field practice area of a medical college. This model is now being adopted by many private and government medical colleges[13] and can serve as a potential source of cause-of-death data in many places.

Thus, there are multiple sources of mortality statistics in a district with their own limitations in terms of coverage, quality, and timeliness. Even if district level officials are interested, they neither have the time nor capacity to compile these data and make sense of them. The system does not require them to do so, nor would it reward them if they did. It is, therefore, not surprising that no one looks at mortality data to assist program planning and implementation in a district. This is a typical chicken and egg situation – data is not available in usable form, and nobody produces it, as no one asks for it.

A strategy for change

To change the status quo, we first need to create a demand for cause-of-death data at district level, strengthen the capacity to use this data, and establish mechanisms to synthesize cause-of-death data into a usable product. There are three major stakeholders related to mortality surveillance in a district. First is the group of people involved in death registration. There is a very varied model for death registration by states of India.[14] Some States like Haryana have made health

department medical officers as sub-registrars of births and deaths. The second group of people are the health facilities that certify the cause of death and send this information to district or municipal officials. The third group is the district health planners, program officers, etc., who need to use this data to make appropriate decisions. There are four major strategies to bring about a change in the system.

1. Improving coverage and quality of medical certification of deaths
2. Ascertain cause of death in non-institutional deaths, preferably through the health system or at the time of registration.
3. Develop an integrated digital data management solution for mortality surveillance.
4. Increase demand and build capacity of district level officials in mortality data management.

In most states, information technology has been deployed for the registration of births and deaths. It is not difficult to extend these by building software applications to link them and generate analysis needed by the district level officials. This can be supported by building the capacity of stakeholders for utilization of the data at a local level using e-resources. There are many existing global and national resources available to support the implementation of these strategies. These include training of health care professionals for medical certification of deaths[15,16]; e-solutions like NCDIR e-Mortality Software (NCDIR e-Mor),[17] Analyzing Mortality and Causes of Death 3 (ANACoD3) an online tool to perform a comprehensive analysis of mortality and cause-of-death data[18] and training programs aimed at users of the data.[19]

Developing a scalable district level model will require adopting or adapting these resources to the Indian context. This will need formative and implementation research at district level as demonstrated in Indonesia,[20] where the formative research guided the feasibility of implementation
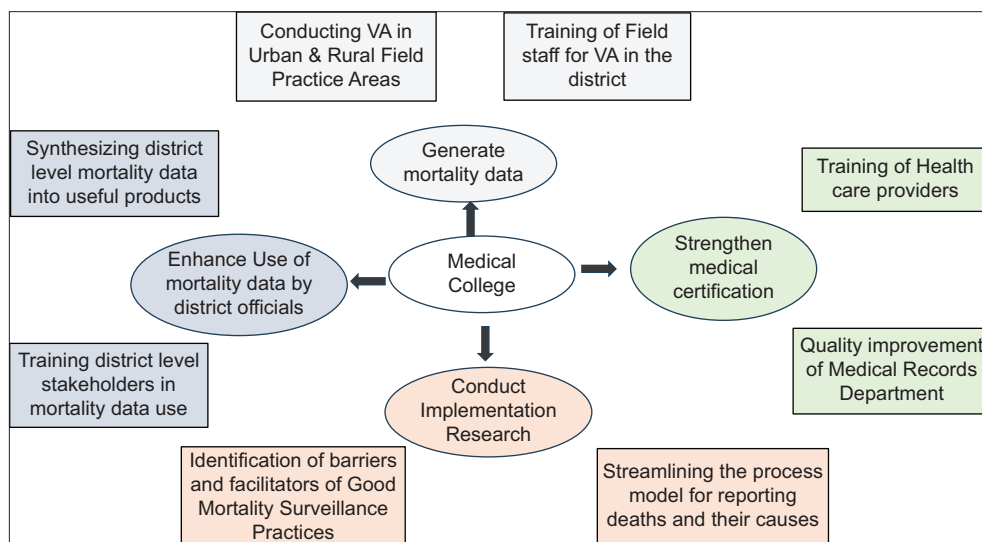
Figure 1: Role of Medical colleges in strengthening district mortality surveillance

through local adaptation of international standard protocols, training resources, and capacity building programs for different stakeholders.[21]

There has been a move in India to link medical colleges to district hospitals. I believe this provides an opportunity for medical colleges to undertake the necessary efforts to ensure the availability and use of mortality data at district level. They have the capacity and, given a mandate and necessary support, can make this happen. The proposed role of medical colleges in strengthening district mortality surveillance is shown in Figure 1. It includes four broad domains generating mortality data, strengthening medical certification, enhancing data use, and conducting implementation research, keeping with the strategy outlined earlier. This will require efforts within the medical college, working in the community as well as with the district health and administration. These activities can be supported by national level mechanisms, resources, and platforms and public health related professional associations and organizations.

The current mortality surveillance system at the district level is an orphan. Can the health system, specifically, the medical colleges, adopt it?

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