INDIA: DEATH REPORTING, MEDICAL CERTIFICATION OF DEATH, AND MORTALITY STUDIES

Introduction

Death registration is necessary for planning, implementing, and evaluating public health and interventions. It is also helpful with practical issues like hospital reimbursement, life insurance claims, obtaining a probate or succession certificate, settling property claims, releasing gratuity and provident fund claims and deleting the deceased name for the Ration Card, and Voter's List or employer's register. [1] Despite great need and multiple uses, death is greatly underreported in India, as at least half of Indian deaths are not registered. In order to begin thinking about ways to improve death reporting in India, it is crucial to understand the current state of this reporting, including the legal and social context. The following outlines these issues and discusses current and suggested interventions for improvement.

The Current State of Death Registration in India

The law on death registration

The RBD Act, 1969 [2] requires a death to be reported to the local authorities within a specified period of time (e.g. within 72 hours, varied by State). The body must be disposed within that time frame and at specified places in order to receive a death certificate. All States have framed rules under this Act.

The RBD Act specifies the functionaries for birth and death registration (civil registration). The Registrar General of India is in charge of ensuring birth and death registration in every State. Under the RGI, the Deputy Registrar General works under the RGI. In each State the Chief Registrar is the executive authority for carrying out the provisions of the Act, with the help of the additional Chief Registrar. Under these the District Registrar and Additional District Registrar discharge the duties of the Act. Locally the Registrar and Sub Registrar register the vital events and other related duties. Depending on the rules of each State, the local Registrars are usually the Secretary of the village local body (Panchayat) or other village official, the officer of the local police station, a subdivisional head (Tehelsidar) or Block Development Officer, a local health functionary, or a teacher of a government school. [3] In urban areas, a Health Officer or Executive Officer or the Commissioner of the Municipality or Municipal Corporation function as Registrars. In large cities Sub-Registrars in different areas do the actual registration.

A rule drafted by the Government in 1999 simplifies the Act and provides guidance to the States to prepare rules. It also gives directions for charging penalties for late registration (Rs. 50). [3]

Coverage gap

Although a legal framework and a system of civil registration are in place, currently India lacks systematic death registration. [4] The current level of death reporting in India is 54%, as per an available report of UNICEF. [5] This is an improvement from several years earlier, in 2001, when according to an available report of the Commission in 2001, national coverage of death registration in India was 46%. Level of reporting varied in reporting states from 13.7% in Assam to <u>100% in Karnataka in 1998</u>. Some states were registering and reporting nearly 90% of deaths (e.g., Goa, Punjab) while several States had not reported any registered deaths since 1995. [6] Lack of awareness among the population coupled with lack of implementation on the part of the States have been responsible for this irregular state of affairs.

Apart from under-reporting of deaths in general, gender and age of the deceased affect reporting. Adult female deaths are less likely to be registered than male deaths, since women rarely own property to be passed on by inheritance. [7] Infant and child deaths are also grossly under-reported, as is common in developing countries. [8]

In a community study of child mortality in slums of Lucknow, causes of death since January 1992 were recorded in 1995 in all the existing Anganwadis (early child care centres) of the Integrated Children Development Scheme (ICDS). It is known that the ICDS Anganwadis in Lucknow underreport death by one-third. [9] Of all deaths reported by the ICDS in Lucknow, 71.8% deaths occurred at home; of hospital deaths, 94.5% did not have a death certificate. Since most deaths occur at home causes of death cannot be monitored reliably. [10]

Cause of death reporting and medical certification of death

In India's Civil Registration System, basic "cause of death" is subdivided into accident, violence or disease, often without further details. Over three-quarters of deaths in India occur in the home; more than half of these do not have a certified cause. [11]

Medical certification of cause of death, which is more detailed than simple certification of basic cause, covers only 4% of the 9.5 million deaths occurring in India each year. Medically certified deaths are mainly in urban areas, which are not representative of the 9.5 million deaths occurring in the whole of India each year. [11]

<u>Legal framework</u>

Medical Certification of Cause of Death under Civil Registration System has statutory backing under sections 10(2) and 10(3) of the Registration of Births & Deaths Act, 1969. [12] Despite reminders and clear instructions, 17 states have not notified their hospitals about the scheme, nevertheless, many of these states are nevertheless reporting data on medically certified deaths. Medical Certification of Cause of Death (MCCD) in India is carried out under the government Medical Certification Scheme, which includes training of medical practitioners, and is mainly carried out by allopathic general practitioners, but also

registered medical practitioners of other system of medicine. As per the RBD Act, the treating doctor during the last 14 days of the patient's life may issue cause of death only after being fully satisfied as to the clinical diagnosis and corroborative diagnostic tests. In case of unexpected death, or suspicion of death due to unnatural causes, the doctor may certify death, but not the causes of death and must notify the police for further investigations and postmortem. *(Here lies a potentially difficult situation for the next of kin – see case study No. 4)*. The doctor must politely decline to issue a medical certification of cause and explain the situation to the family of the deceased. He or she is also expected to guide the family on further steps for obtaining the death certificate. It is the responsibility of the signing medical practitioner to forward the death certificate to the registering authority, although this is usually sent through a relative of the deceased, who receives a permit from the municipality to dispose of the dead body only after presenting the death certificate for registration – as per the RBD Act. [13]

The death certificate used in India is the one recommended by the World Health Organization to ensure national and international comparability. The causes are coded according the International Classification of Diseases, 10th Revision, as of 1999.

The Medical Certification Scheme

A large number of hospitals and other health care institutions are part of the Medical Certification of Death Scheme (or system). This includes a package of training and supervision. State governments are required to notify the hospitals about the RBD Act, 1969, requiring them to report medically certified deaths. Training of medical officers and coders started being carried out by Office of the Registrar General (ORGI) under the Medical Certification of Death Scheme from the 1970s onwards, beginning in a few states.

Coverage gaps

In 1999, the level of medically certified deaths out of all reported deaths (inclusive of rural deaths) was 15.4% in 23 states and varied from < 1% in Uttar Pradesh and 1.5 in Punjab to >90% in Goa. In fact, several states are not reporting medically certified deaths. [12]

Coverage of hospitals with the MCCD scheme as of 1999 was 30%; the proportion of hospitals that reported MCCDs among covered hospitals was 57% nationwide. In most participating states all covered hospitals were reporting. For Example, in Karnataka, in 1999, all 370 hospitals covered by the scheme were reporting (out of 516 total hospitals); in Punjab, 214 covered hospitals (out of 220 existing) were reporting; in Goa, all 121 hospitals in the State were covered and reporting. States with several thousand hospitals (Andhra, Pradesh, Kerala and Maharasthra) had been taking time to implement the scheme in all of them (Andhra Pradesh with 3584 hospitals had covered 1652, but only 57 were reporting). Comparatively, Kerala and Maharashtra were getting complete compliance with reporting from covered hospitals as of the same year, 1999. The low level of reporting of a large number of covered hospitals in a few states led to the low proportion of hospitals reporting nationally. Most of the states are not adhering to the specified timetable for

submitting the annual report of deaths. Not all the hospitals in the system are reporting regularly.[12]

The level of reporting is low even in States where the MCCD Scheme has been implemented. Seven States are not reporting MCCD (Assam, Bihar, Jammu and Kashmir, Mizoram, Tripura West Bengal and Chandigarh.) The MCCD Scheme has not been implemented yet in Uttaranchal, Jharkand, Dadra and Nagar Haveli and Damana and Diu. In a number of States where funds have been allocated for training of medical officers and statistical personnel, the states have not responded by sending in proposals for training (Bihar, Maharashtra, Orissa, Pondicherry). The post of Nosologist in the Office of the Chief Registrar of the State has not been created in a number of states, despite full funding available.[12]

In December 2004 in Patna, at a seminar jointly organized by the Directorate of Statistics and Evaluation and UNICEF, it was pointed out that most of the nursing homes and hospitals in the city are not providing reports on the births and deaths in their institutions to Patna Municipal Corporation. This amounts to the violation of the RBD Act and is also punishable. An appeal was made to the medical community to take a lead in registering births and deaths.[14]

Examples of good overall death reporting with medical certification

Overall, then, using data of 1999, disregarding the tiniest states and Union Territories many of which are performing very well, Goa is the best performer, having has a high level of death registration (over 85% in 1999) and medical certification of deaths (91.7%). Among the larger states, Karnataka had 100% reporting of deaths but only 14.5% medical certification in 1999. While Punjab had high registration of deaths (over 85%), it had a very low level of medical certification (1.5% in 1999). Maharashtra had about 71% of deaths registered and a 35.6% level of medical certification of deaths. Tamil Nadu had 75% deaths registered and 20 % medically certified in 1999. Thus, among the larger states (having population over 15 million), Maharasthra and Tamil Nadu could be considered the best overall performers, as of 1999.[6, 12]

In some metros, reporting of deaths and medical certification is very high and of good quality, e.g., Chennai, Delhi and Mumbai. In Mumbai, for example, according to an analysis of over 23,000 death certificates, 45.4% of deaths occurred in hospitals, 52.8% occurred at home and 1.8% occurred elsewhere. All were medically certified. Of the sample of 20,362 certificates, very few had missing information: 51 were missing gender information, 22 were missing age, 1064 had missing marital status, 52 had missing religion and 5 had missing occupation.[15] In Mumbai, all the places of disposal of the dead are under the control of the Municipal Corporation and a representative of the corporation sits at these places (as per the RBD Act) to collect the death certificate before permitting disposal of the body. This greatly helps to enforce death reporting in Mumbai.

In a follow-up study on mortality in Mumbai, cause of death information from the records of the municipal corporation was abstracted for 5470 deaths occurring in the study area.

They were coded using ICD-10 (by the staff and checked by doctors) Among total coded deaths (5470), 15% were recorded as acute myocardial infarction, and 19% were due to other causes (mainly senility 22%). These seem to be rather non-specific, indicating a variable quality in the recording of causes of deaths. [16]

Issues of under-reporting of deaths

While studying the issues of birth and death certification in urban areas, a non-government organization (NGO), PRIA (formerly SPRIA – the Society for Participatory Research in Asia), concerned with issues of local governance and health, conducted field-based studies to understand the flow of information from the grass roots to the municipality and the mechanisms in the registration process. PRIA found large gaps in death and birth registration and very low levels of awareness about registration especially among the poor and marginalized population in selected municipalities of Haryana, A.P; Rajasthan and U.P. Discrepancies in death data were found in Haryana. [17]

UNICEF also recently performed an analysis of obstacles to birth and death registration. Below are the key findings of the UNICEF and PRIA studies.

Key issues and challenges identified by UNICEF: [5]

- Low priority accorded by the States to registration and general apathy;
- Lack of inter-departmental co-ordination;
- Inadequate budget allocation by the States for Civil Registration work;
- Low levels of knowledge amongst registration functionaries about the processes and procedures of registration, reporting and management of data;
- Lack of regular monitoring and supervision of civil registration work in the states.

Key issues identified by PRIA: [3]

- Logistical hurdles;
- Lack of awareness by the general public;
- Conflict with tradition in ethnic minorities (e.g tribal groups who mistrust the government);
- Weak enforcement of legal measures and inadequate penalty to the designated official for not registering the death within 21 days;
- Insufficient funding and inadequate technology;
- Lack of mandatory rules for effective use of certificates;
- High proportion of deaths occurring outside medical institutions.

Lack of demand for death certificates and data ascribed by UNICEF to: [5]

- Lack of awareness about the need and importance of registration;
- Low utility of registration certificates;
- Weak demand for vital statistics among planners and administrators.

This last comment by UNICEF shows that death data is not being utilized for planning and monitoring purposes in some areas, probably due to a lack of understanding of its utility by administrators. This is a serious lacuna that needs to be addressed. Also death certificates are not being routinely asked for at places for disposal of dead bodies, except in specific places, for example, Mumbai.

Case studies

In India the majority of people who register deaths of near and dear ones fail to collect the certificates for one reason or another. The aspect of whether or not death certificates are a perceived need of the citizens is also relevant to this aspect. Yet, sometimes the people face a lack of cooperation on the part of the authorities entrusted with the duty of death registration. Several case studies available on the Internet illustrate some of the problems faced by the citizens in obtaining death certificates.

Case No. 1: PRIA has described the case of a poor widow from a small town of Andhra Pradesh, who, on becoming aware of the need for the death certificate of her late husband (who died 10 years earlier) to obtain widow's pension, was unable to obtain the same from the authorities, even after payment of a hefty bribe and many visits to the municipality over several months. [17]

Case No. 2: A case in Punjab described the difficulties of a family in obtaining a correct death certificate (see Box 1). [18] The certifying doctor must verify that all facts on the certificate are correct before submitting it for registration (e.g., age, sex, date of death, etc.), as the process of obtaining a corrected certificate afterwards is very time consuming and trying for the next of kin.

Box 1. Case No. 2.
LMC messes up death certificate [18]
Tribune News Service. Ludhiana, December 1

Showing absolute carelessness, the Death and Birth Registration Department of the Ludhiana Municipal Corporation (LMC) has registered the date of death of a city resident when she was alive. Bimla Devi, a city resident, had died on November 8 but when her family members, after numerous visits to the office, managed to get her death registration certificate they were shocked to read the date as October 8.

Flustered with the callousness of the department, deceased's nephew K.K. Verma said: "Obtaining the certificate itself proved to be an arduous task. Only after numerous visits could we manage to obtain one. We were quite shocked to see that the date of my aunt's death was mentioned wrong. She died on November 8, while the certificate shows her to have died on October 8. I wonder if getting a certificate was so difficult how easy would it be to get a fresh certificate with the correct date." "Death itself has left the family upset. Such long procedures with careless officials are only adding to our woe," her family members rued.

Mr Verma, who is a resident of Durga Puri in Haibowal Kalan, added that he needed five copies of the death certificate for which he had to visit the registration office almost 10 times. He also pointed out that officials there charged Rs 10 from him as fee for obtaining a single copy, even though no such information was put up on the department's notice board.

Case No. 3: Another case in Punjab was described about a man who was refused his wife's death certificate by the hospital where surgery was performed that proved fatal. The hospital did not report the death to the Registrar of Births and Deaths, but claimed that the patient died in another hospital where she was transferred after the surgery. On enquiry with the second hospital, it was found that the woman had been dead on arrival and never admitted, hence the second hospital would not give a death certificate. [19] This shows how hospitals try to avoid taking responsibility for deaths occurring in their premises.

Case No. 4: The following case illustrates how a death occurring at home without a history of recent medical treatment led the family members and friends from pillar to post trying to get a death certificate in Delhi. This case, of a death in an educated, wealthy urban family, illustrates the problem faced when a death is unexpected and the individual was not under any treatment from any doctor in the last 14 days (See Box 2). [20]

Box 2. Case No. 4.

An Unforgettable Experience. *(shortened and edited)* **by Hemanta Sen** [20]

…That day I arrived at the office half an hour before my shift started, …. As I … headed towards TD's (my best friend's) workstation … the caller Id of my cell phone showed 'TD calling'. … Radhika's (TD's girlfriend) father had expired. … Being a chain smoker, only 20% of his heart was functional. Without wasting any time TD and I reached DLF, a posh colony in Gurgaon where Radhika's family had been residing for just over 6 months. We were informed that Uncle's dead body had been taken to a private hospital, only 3 miles away from Radhika's house. We rushed to the hospital immediately, only to find one of our other friends and Aunty (Radhika's mom) in a state of despair. Wrapped in a white sheet on a stretcher was Uncle, lying outside the hospital campus, almost by the side of the road. If the death of a person does not take place in the hospital, the law prohibits the doctors of that hospital from providing a death certificate or to keep the dead body in the mortuary till the time a death certificate is produced before them. Since uncle took his last breath in the house after which he was brought to the hospital, there was little the hospital authorities could do to help us. The only option left for us was to carry Uncle's body immediately back to the house. … 'Bhaiya' (Radhika's brother) … was not expected to reach India till another 48-50 hours. The only option left for us was to make sure we put uncle in the mortuary ASAP and to make that happen we would need a death certificate. It was almost 8 PM, five hours since uncle's eyes were open for the last time. If not anyone else, I got a faint stink of the dead body … The only family that turned up that evening was Uncle's brother. To our knowledge he had a MBBS degree. This soared our hopes high, thinking that at least now there is a scope to get the much needed death certificate. To our outmost surprise and disgust we found out that even this brother of Uncle, due to some reason, was reluctant to write a death certificate. Someone suggested to us about a lady doctor who stayed in that same locality and was present during the last moments to check uncle's pulse. She was the one who had actually confirmed that Uncle had expired. TD and I ran to her house. … It seemed she already knew why we were there and denied our request for the death certificate, the reason being that she was a dentist and not a general physician. Her husband was also a doctor but he was an employee of the same hospital where we took uncle earlier and if he wrote the certificate his job would be at stake. Somebody told us to go to the nearby government hospital to see if we can get any help from there. It was already dark by the time we reached there. As we were hunting around for doctors, we found a few men gathered in one of the rooms playing cards. When I knocked …, one of them asked me what the matter was. … he shouted back rudely saying that I should not expect any doctor's help at this hour …. Both TD and I strolled towards my car in disgust. … The last resort was to call my friends at AIIMS… Radhika's family were … reluctant to keep uncle so far away from the house …. TD wanted to give one last shot and request for the death certificate from the lady doctor's husband, who by this time had returned from his work. This man seemed to me as a gentleman who knew his responsibilities to be a doctor. Without any hesitation he gave us the certificate. With this piece of paper, we could keep the body in the mortuary for the next three days till the time 'Bhaiya' came and the funeral took place. It was a bitter experience which made me … realize the flaws in our system and society. It forced me to think about all those who die in the street daily and what their relatives go through.

Current Activities for Improving Death Registration

Some State governments conduct awareness cum sensitization programmes for the public as well as for the responsible officials and training is conducted for doctors, especially in urban areas (e.g. Sikkim). [21]

Interventions by PRIA and other NGO partners to facilitate death registration have consisted of multiple efforts like meeting concerned authorities, capacity building of elected representatives (e.g. ward councillors) on the issue, surveys, collecting data, and sensitising stakeholders. [17] By the end of 2003, PRIA extended its urban interventions to 48 towns in 12 states.

Using software solutions in local languages for Village Panjayats, the Indian Institute of Management, Ahmedabad, is carrying out pilot projects in villages of Andhra Pradesh, Gujarat, Goa and Karnataka to introduce digitized birth, death and income, tax and other certificates needed by the common man and the Panchayats online. [22] The nation's capital is also now using information technology to streamline its death registration system (Box 3). [23]

Suggestions for further improvement

<u>Strategies for improving death registration suggested by PRIA</u>: [3]

- Awareness creation through public campaigns on registration,
- Training of citizen's groups for awareness creation,
- Formation of NGO task forces to create awareness and interact with authorities,
- Opening of Seva Centers (citizen's centers) in more areas for fast registration,
- Provision of adequate human resources through filling up vacancies,
- Adequate technology, such as computerization.

The government committee, under the chairmanship of the RGI has conducted a review of the RBD Act, 1962 to identify legal and administrative bottlenecks draft an amended act. The reports of the two subgroups have been submitted to the Committee. [24] A revised Act was to be placed before the Parliament during the winter session of 2006. [5]

Box 3. News Report: Now birth and death certificates, just a click away.

Tribune News Service, Monday, November 8, 2004, Chandigarh, India. [23]

New Delhi, November 7
Delhiites have heaved a sigh of relief after the MCD has launched an online system for getting the birth and death certificates. Earlier, people used to spend hours for the certificates, but now it is available just a click away. The corporation not only makes these certificates available online, but also couriers it to the people. The scheme has been launched by the Health Department of the MCD so that the people will not have to wait in long queues. The software was developed by Dr S. Patnaik, a senior official of the MCD said.

People can collect birth and death certificates online from www.mcdonline.gov.in by using plastic money or credit cards, he said. Nine certificates have already been issued by using the technology and more and more people are availing this online service every day, he added.

However, he said that of the 450 hospitals in Delhi, 281 city hospitals and nursing homes have empanelled with the MCD website during the past one year and they were updating the data everyday regarding birth and death happening in their premises. The data was being compiled by the Deputy Health Officers of 12 MCD zones.

The hospitals issue an authorisation slip regarding such happenings and individuals could fill the form for birth and death certificate online using the particulars mentioned in the slip. By paying Rs 20 as fee for birth certificate and Rs 10 for death certificate along with a courier fee of Rs 10 in each case, people can get the certificates at their doorsteps, he informed. Any change and correction in the names, spellings in the certificate could also be done online.

"Delhi on an average witnesses about 2.5 lakh birth and 60,000 to 70,000 deaths every year, and the online service will make the registration of birth and deaths very easy," he said. Meanwhile, the MCD has also launched a software, which would help in collection of data regarding spread of dangerous diseases within the city so that quick and effective remedial action could be taken. (Available from: http://www.tribuneindia.com/2004/20041108/delhi.htm#3)

Conclusions on Death Registration and Medical Certification

Although death registration has increased over the years, and has reached over 90% in some states, vast improvement is needed in many states. Advocacy for the implementation of the suggestions mentioned by the government itself, UNICEF and the NGOs, like PRIA, would help to create political will and ensure speedier implementation of more universal death certification. Medical certification of death training needs to be extended to more areas and institutions and refresher training would also help to re-motivate medical practitioners in under-reporting areas. Awareness of the importance of vital registration needs to be created in the public, the State governments and future IAS officers through school and college curricula. Meanwhile, the use of death surveys (e.g., the World Health Survey and the National Family Health Survey) for estimates of numbers of deaths age wise by socioeconomic characteristics and the Sample Registration System with verbal autopsy to estimate mortality fractions by cause of death (see background paper on this topic) are available for policy and programme planning purposes.

REFERENCES

1. Bokil PV. "Death certificate". QPMPA Journal of Medical Sciences 2002;16 (3) : 84-6.
2. The Registration of Births and Deaths Act, 1969 (Act No. 18 of 1969). Available from: http://www.censusindia.net/rbd_act_1969.pdf
3. PRIA. Concept Paper on Birth and Death Registration. PRIA. New Delhi, February 2005. Available from: www.pria.org/downloadfile/Birthdeath1.pdf
4. Kumar AV, Yeole BB. Assessing cancer burden in rural India: an analysis by cause of death statistics. Asian Pac J Cancer Prev. 2005 Apr-Jun;6(2):221-3.
5. Birth Registration - the picture in India. India Child Protection.New Delhi, UNICEF, India. 2006. Available from: http://www.unicef.org/india/child_protection_1629.htm
6. National Commission on Population. Report of the Working Group on Registration of Births, Deaths and Marriages. New Delhi, 2001 Available from: http://populationcommission.nic.in/RPM_Report.htm
7. Bahuguna NJ. A newborn's first right. India Together, 7 May 2005. Available from: http://www.indiatogether.org/2005/may/wom-girlbirth.htm
8. Nations MK, Amaral ML. Flesh, Blood, Souls, and Households: Cultural Validity in Mortality Inquiry. *Medical Anthropology Quarterly*, New Series, Vol. 5, No. 3, Contemporary Issues of Anthropology in International Health (Sep., 1991), pp. 204-220.
9. Awasthi S, Pande VK. Cause specific mortality in under fives in the urban slums of Lucknow, North India. J Trop Pediatr 1998; 44: 358-361.
10. Awasthi S., Agrawal S. Determinants of child mortality in urban slums in India. Indian Journal of Pediatrics 2003;40:1145-1161. Available from: http://www.indianpediatrics.net/dec2003/1145.pdf
11. Jha P, Gajalakshmi V, Gupta PC, Kumar R, Mony P, Dhingra N, Peto R. RGI-CGHR Prospective Study Collaborators. Prospective Study of One Million Deaths in India: Rationale, Design, and Validation Results. PLoS Med 2005:3(2):e18. Available from: http://medicine.plosjournals.org/perlserv?request=get-document&doi=10.1371/journal.pmed.0030018
12. Status of Medical Certification of Cause of Death in India. Medical Certification of Cause of Death, presented at Vigyan Bhavan, New Delhi. 27th-28th January, 2005. Powerpoint presentation. Available from: http://gujhealth.gov.in/basicstatastics/pdf/MCCD.ppt
13. Gurav RB, S Kartikeyan S. Role of General Practitioners in Issuing a Death Certificate. Bombay Hospital Journal. April 2004. Available from: http://www.bhj.org/journal/2004_4602_april/html/role_166.htm
14. Times News Network. 'Poor record of birth, death registration.' December 23, 2004. http://timesofindia.indiatimes.com/articleshow/968538.cms
15. Pednekar Rathod B, Patwa N, Saratchandran S, Mehta S, Jain V and Gupta PC. 2006. Project on cause specific mortality in Mumbai and evaluating possible risk factors. (Unpublished).
16. Gupta PC, Pednekar MS, Parkin DM, Sankaranarayanan R. Tobacco associated mortality in Mumbai (Bombay) India. Results of the Bombay Cohort Study. Int J Epidemiol. 2005 Dec;34(6):1395-402. Epub 2005 Oct 25.
17. Birth and Death Registration. PRIA News, New Delhi. 2004 Jul-Sep; 5(2):5. Available from: http://www.pria.org/downloadfile/Vol5e.pdf
18. Tribune News Service. LMC messes up death certificate. Ludhiana, December 1, 2006. The Ludhiana Tribune, Chandigarh, India. Available from: http://www.tribuneindia.com/2006/20061202/ldh1.htm

19. Makhan. Docs give death, not certificate. Punjab in the News. Fategarh Sahib. July 26, 2002. Available from: http://www.punjablinks.com/addons/news/
20. Sen H. An Unforgettable Experience. Available from: http://www.maadhukari.com/prabandha/experience.html
21. Health Care, Human Services and Family Welfare Department, Government of Sikkim, Annual Report 2005-2006. Available from: http://sikkim.gov.in/asp/AnnualReport/ANNUAL%20REPORT%20HEALTH%20FW%20part-I&II.Doc
22. Misra DC and Vijayaditya N. Development informatics – Reaching the rural India. Role of NIC. Information Technology in Developing Countries 2006 16 (1). Indian Institute of Management, Ahmedabad, Gujarat. Available from: http://www.iimahd.ernet.in/egov/ifip/feb2006/article2.htm
23. Tribune News Service. Now birth and death certificates, just a click away. Monday, November 8, 2004 Chandigarh India. Available from: http://www.tribuneindia.com/2004/20041108/delhi.htm#3
24. Ministry of Home Affairs. Annual Report. Government of India, New Delhi. 1.8 MB Available from: http://mha.nic.in/Annual-Reports/ar0506-Eng.pdf

Suggested Further Reading:

Sibai AM. Mortality certification and cause-of-death reporting in developing countries. Bull World Health Organ. [online]. 2004, vol. 82, no. 2 [cited 2007-01-13], pp. 83-83. Available from: http://www.scielosp.org/scielo.php?script=sci_arttext&pid=S0042-96862004000200002&lng=es&nrm=iso