AN ANALYSIS OF THE HEALTH SITUATION

This analysis of the health situation includes discussion on population and related vital events, on health delivery system, services and personnel, and on activities carried out in public and private health institutions. The morbidity patterns and mortality trends have also been discussed.

POPULATION AND VITAL STATISTICS

The estimated resident population of the Island of Mauritius as at the end of 2005 was 1,206,346 (596,498 males and 609,848 females) as compared to 1,094,430 in 1995, with an average annual growth rate of 1% during the last ten years.

During the year 2005, 17,924 live births were registered, giving a crude birth rate of 14.9 per thousand mid-year resident population. In 1995, the crude birth rate was 18.2. This explains the fall in the average number of children that would be born alive to an average woman during her lifetime from 2.13 to 1.79 during the ten year period.

Life Expectancy at birth, 66.4 for males and 74.0 for females in 1995, was estimated to be 68.9 and 75.6 respectively in 2005. This ageing of the population, given the growing proportion of population aged 60 years and over, will place an extra burden on health related service in future years.

The number of deaths registered in 2005 was 8,422, corresponding to a crude death rate of 7.0 per thousand mid-year resident population. The crude death rate was 6.7 in 1995 and 6.8 in 2000.

The number of infant deaths, that is deaths among children aged under one year, registered in 2005 was 237, corresponding to an infant mortality rate (IMR) of 13.2 per thousand live births. The IMR which was 19.6 in 1995 increased to 22.2 in 1996, the highest rate in the last decade. Following the opening of the Neonatal Intensive Care Service at Victoria Hospital in May 1999, the IMR drastically fell from 19.2 in 1999 to 15.8 in 2000. The lowest IMR (12.4) was recorded in 2003.

The number of maternal deaths registered in 2005 was 4. The maternal mortality rate per 1,000 livebirths was then 0.22 as compared to 0.61 in 1995. The lowest rate with only one death due to complication following childbirth was 0.05 in 2002.

HEALTH DELIVERY SYSTEM

In the Island of Mauritius, as at the end 2005, there were five regional hospitals with a total of 2,366 beds and two district hospitals namely Souillac Hospital with 54 beds and Mahebourg Hospital with 63 beds. There were also a psychiatric hospital with a bed complement of 812, and other specialised hospitals for chest diseases (62 beds), eye diseases (68 beds), ear, nose, and throat (E.N.T.) diseases (63 beds) and heart diseases (62 beds), as well as a skin diseases infirmary (2 beds). This brought the total number of beds in government institutions to 3,550 as compared to 3,819 in 2000. A fall in the number of admissions to these institutions has also been observed.
In the private sector there were, as at the end of 2005, twelve nursing homes (private clinics) with a total of 517 beds. The total number of beds in the public and private sectors as at the end of 2005 was thus 4,067, that is, 3.4 beds for 1,000 inhabitants. In 1995, the corresponding ratio was 3.2 beds.

All regional and district hospitals as well as the Psychiatric, Eye, E.N.T., and Cardiac hospitals have an out-patient department. Out-patient services were also delivered in two community hospitals, two medi-clinics, 22 Area Health Centres (AHC) and 112 Community Health Centres (CHC). The basic services delivered at CHC include the treatment of common diseases and injuries, maternal and child care, and family planning. In addition to these services, AHC also provide dental care. However, in 2005, two AHC did not have facilities for dental care. This service was been also delivered in six CHC’s. Out-patient care was also provided in the private sector, including several private clinics and 17 dispensaries on the sugar estates.

There were also 13 health offices, a chest clinic, a social hygiene clinic, and a National Centre for the Immuno-suppressed in operation as at the end of 2005.

HEALTH PERSONNEL

At the end of 2005, there were 1,342 doctors in the Republic of Mauritius, that is one doctor for every 930 inhabitants. Of those doctors, 777 (57.9%) were employed in the public sector. In 1995, there were 960 doctors, of whom 542, that is 56.5% were in the public sector. There was then one doctor for an average of 1,176 inhabitants.

There were 172 dentists, of whom 56 in the public sector, at the end of 2005. The corresponding number of pharmacists were 305 and 22 respectively. The number of qualified nurses and midwives in the public & private sectors were 2,893.

INPATIENT SERVICE

The number of admissions (including re-admissions) to government hospitals in the Island of Mauritius, in 2005, was 190,674 of which 164,285 (86.2%) were in general hospitals. The number of admissions represented a decrease of 6.8% over the figure for 2000 when it was 204,673. In 1995, there was 168,835 admissions.

The total number of births (live births and stillbirths) occurring in the maternity sections of government general (regional and district) hospitals in 2005 was 14,887, that is 82.3% of all births registered in the Island. The mode of delivery was 9,831 (66%) normal, 205 (1.4%) instrumental, and 4,851 (32.6%) by caesarean section. The percentage of delivery by caesarean was 20.1 in 1995 and 27.2 in 2000.

OUT-PATIENT SERVICE

The total number of attendances at out-patient departments of hospitals (sorted, unsorted and casualty) was 2,826,848 in 2005 as compared to 2,680,003 in 2000 and 2,017,939 in 1995.
In 2005, attendances for the treatment of common diseases and injuries at the community hospital, mediclinics, area & community health centres was 3,574,000, as compared to 2,825,135 in 2000 and 2,138,122 in 1995.

MATERNAL AND CHILD HEALTH

The number of first attendances for antenatal examinations by the staff of M.C.H. static clinics was 15,963 in 2000 and 13,735 in 2005. The total number of first and subsequent attendances (by staff and doctors) for antenatal examinations, postnatal examinations, and examinations of children under the age of five years, at M.C.H. static clinics was 190,371 in 2005 as compared to 197,840 in 2000.

The percentage of low birth weight (less than 2,500 grammes) among live births in the public sector increased from 13.9% in 1995 to 14.3% in 2000 and 17.3% in 2005. The percentage of caesarian section on total deliveries occurring in government hospitals increased from 20.1 in 1995 to 27.2 in 2000 and to 33.2 in 2004; it slightly dropped to 32.6% in 2005.

The number of babies immunized against tuberculosis (B.C.G.) by M.C.H. staff in 2005 was 16,147. The number of children immunized against diphtheria, whooping cough, tetanus (D.P.T.) and hepatitis B (3rd dose) was 15,670. Those immunized against poliomyelitis (3rd dose) was 15,747 and against measles/mumps/rubella (MMR) was 15,750. The figures refer to the activities of M.C.H. staff at government vaccination centres. Vaccinations done in the private sector, estimated to be around 8%, are therefore not included in the table below.

Immunisation Coverage Rate as a percentage of registered live births:

<table>
<thead>
<tr>
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<th>1995</th>
<th>2000</th>
<th>2005</th>
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<tr>
<td>BCG</td>
<td>86.0</td>
<td>87.2</td>
<td>90.1</td>
</tr>
<tr>
<td>D.P.T (3rd dose)</td>
<td>92.5</td>
<td>87.3 *</td>
<td>87.4*</td>
</tr>
<tr>
<td>Polio (3rd dose)</td>
<td>93.0</td>
<td>87.4</td>
<td>87.9</td>
</tr>
<tr>
<td>MMR</td>
<td>89.1 @</td>
<td>84.3</td>
<td>87.9</td>
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</tbody>
</table>

* with hepatitis (3rd dose) @ measles only

SCHOOL HEALTH

During the year 2005, the nursing staff responsible for school health visited 293 pre-primary schools and screened 10,481 children. 10% of these children were found to have nits and lice.

In the primary sector, the nursing staff visited 261 schools and screened 76,746 pupils. 31,456 pupils of Standards III, V and VI were submitted to vision tests and 1,004 of the 1,130 children with defective vision were referred to specialists. 15,835 new entrants were immunized against diphtheria, tetanus (D.T.) and poliomyelitis. 15,557 new entrants were also immunized against MMR and 17,045 school leavers were immunized against tetanus.
DENTAL HEALTH

The total number of attendances at government dental clinics (static and mobile) in 2005 was 290,355, out of which 65,470, that is 22.5%, were of primary schoolchildren, 12,435 (4.3%) were of expectant women and nursing mothers, and 7,445 (2.6%) were of pre-primary school children. The number of cases treated for paradontal diseases was 26,134 and the number of surgical operations on jaws, including surgical extractions of roots and impacted teeth, was 6,652. Fluoride was distributed to 28,870 children and 21,875 children and adults were exposed to oral health education.

NURSING HOMES (PRIVATE CLINICS WITH IN-PATIENT SERVICE)

The total number of admissions and other attendances at the 12 nursing homes in operation in 2005 was 77,642. 30,390 of these cases were seen for treatment (including operations) and 47,252 for examinations, investigations or observations. The total figure also include 2,847 deliveries, of which 1,379 were by caesarean section. The percentage of total births in 2005 represented 15.7% of total registered births in the whole island. 7.4% of livebirths occurring in the nursing homes had low birth weight (less than 2,500 grammes); the corresponding figure was 4.7% in 2000. The percentage of caesarian section on total deliveries occurring in nursing homes increased from 31.6 in 1995 to 35.3 in 2000; it was 48.4% in 2005.

MORBIDITY

The first case of AIDS was notified in October 1987. As at the end of 2005, a total of 2,161 cases of HIV/AIDS were detected, of whom 2,045 (1684 males, 361 females) were Mauritians. 145 of these Mauritians were known to have passed away by the end of 2005.

In 2005, a total of 85,806 persons were tested for HIV and 928 positive cases were detected. The annual number of new cases among Mauritians drastically increased from 50 in 2000 to 225 in 2003, 525 in 2004 and 921 in 2005. 72% of all infected Mauritians were found to be intravenous drug users, mostly among prison inmates.

Deliveries constituted 8.6% of all cases treated as in-patients in general government hospitals in 2005. Among other principal causes of discharges, there were Diabetes Mellitus with 4.7%, Diarrhea and gastroenteritis with 3.3%, Acute Myocardial Infarction and other Ischaemic Heart Diseases with 3.8%, Abdominal and Pelvic Pain with 3.1%, and Hypertensive Diseases with 2.7%.

The distribution by age-groups shows that, in 2005, 21.4% of all cases treated were of persons aged sixty years and over. This group represented only 9.6% of the population. This is not at all surprising as it is generally known that it is the senior citizens who are in greatest need of medical care. The main causes for admission in government general hospitals in the age-group 60 years and over were Acute myocardial infarction and other ischaemic heart diseases, diabetes mellitus, cerebrovascular disease, hypertensive disease and heart failures. The breakdown by sex of patients under thirteen years of age revealed that boys were more prone to accidents than girls. Of all admitted patients, female largely exceeded males due to the high number of discharges for conditions associated with pregnancy, childbirth and the puerperium.
In 2005, of the 2,848 cases treated as in-patient at the Cardiac Centre, 1,411 (49.5%) were for “Ischaemic heart diseases (chronic)”, followed by 399 (14.0%) for “Angina pectoris” and 358 (12.6%) for “Acute myocardial infarction”. A total of 907 operations were performed at the centre, of which 544 (60%) were cardiac surgery.

*Cataract* was responsible for 2,888 of the 4,288 cases treated as in-patients at S.Bharati (Eye) Hospital in 2005 (that is 67.4%). Among the cataract cases, 2,848 (98.6%) were operated upon.

During the year 2005, 449 in-patients were treated at the Poudre d’Or (Chest) Hospital. Thirty-eight patients died at the Hospital, giving a fatality rate of 8.5%. Of the 449 patients, 332 (73.9%) were males. *Pulmonary tuberculosis* was the morbid condition for 165 patients (120 males, 45 females), that is 36.7% of the total.

Of the 4,812 in-patients treated at Brown Sequard Hospital in 2005, *alcohol related conditions (dependence syndrome and psychoses)* accounted for 2,369 cases (2,128 males, 241 females), that is 49.2%. *Schizophrenic psychoses* were responsible for 1,461 (30.4%) cases.

Of the 396 cases (0-3 months) treated as in-patients in 2005 at the Neonatal Intensive Care Unit, located in the complex of Victoria Hospital and SSRN Hospital, 223 (56.3%) were for *disorders related to length of gestation and fetal growth*, 87 (22%) for *respiratory and cardiovascular disorders specific to the perinatal period*, 13 (3.3%) for *haemorrhagic and haematological disorders of fetus and newborn*, and another 13 (3.3%) for *infections specific to the perinatal period*. There were 103 deaths among those 396 cases, giving a fatality rate of 26%; this rate was 18% in 2004.

The number of new cases diagnosed at the specialist clinics in dermatology in 2005 was 12,892 of which 3,255 (25.2%) were *skin infections* (1,649 of fungal origin and 812 of viral origin). 17.8% of new cases were treated for *eczema*, 10.0% for *psoriasis and similar disorders*, and 8.0% for *acne*.

The number of new cases diagnosed at the out-patient specialist clinics in chest diseases during the year 2005 was 1,143 excluding the 61 cases for which there were no definite diagnoses. The number of new cases of *tuberculosis* diagnosed was 93, of which 72 was *pulmonary*. Among the non-tuberculous diseases, *asthma* was in first place with 499 (41.4%) new cases.

Of the 5,108 cases treated as in-patients at the E.N.T Hospital in 2005, 1,061 (20.8%) were for “*acute pharingitis*” and 571 (11.2%) for “*acute tonsillitis*”. Another 13.4% of the in-patients were treated for “*diseases of the ear and mastoid*” and 13.5% for “*foreign body in the alimentary and respiratory tract*”. A total of 1,872 operations were performed on in-patients at the centre, of which 621 (33.2%) were “*excision on tonsils and adenoids*”.

The number of new cases diagnosed by specialists at the out-patient clinics of the E.N.T. Centre in 2005 was 6,028. *Diseases and conditions of ear* accounted for 2,160 new cases (35.8% of the total new cases diagnosed), *diseases and conditions of nose* for 2,110 (35.0%), and *diseases and conditions of throat* for 1,715 (28.5%). *Tonsilitis (acute or chronic), allergic rhinitis, sinusitis and otitis externa* were the most common diseases diagnosed at the centre.
The number of cases treated at the Social Hygiene Clinic in 2005 was 314 (247 males and 67 females). The main venereal diseases treated were gonococcal infections with 93 cases, venereal warts with 64, syphilis with 62 and herpes simplex with 11 cases. The total attendances at the National Day Care Centre for the Immuno-suppressed was 2,088 (1,699 males, 389 females), of which 998 were for voluntary counselling and 775 for HIV/AIDS.

The disease responsible for the greatest number of first attendances at the community hospitals, mediclinics, area and community health centres for the treatment of common diseases and injuries in 2005 was influenza; in fact, first attendances for that disease represented 9.9% of the total number of first attendances. Other most common causes of first attendances were tonsillitis, laryngitis, nasopharyngitis, sore throat, URTI with 9.5%, fever/pain all over with 6.8% and cough, pain in throat, chest pain, wheezing, hiccough, sneezing with 6.7%. The distribution by ICD chapters shows that 23.4% of first attendances were due to “Diseases of Respiratory System” and 9.3% due to “Diseases of the musculoskeletal system and connective tissue”. They were followed by the “Diseases of the digestive system” and “Certain infectious and parasitic diseases” with 6.6% equally.

Of all new cases of cancer registered in 2002, the most common types among males were that of prostate gland with 9.9% followed by that of trachea, bronchus and lung with 9.1%. The two main types of cancer among females were that of breast (37.1%) followed by that of cervix uteri (10.1%)

**CAUSE OF DEATH**

Heart diseases (excluding hypertensive disease, acute rheumatic fever and diseases of pulmonary circulation) and diabetes mellitus were the first two principal causes of mortality in 2005, with 1,921 (22.8%) and 1,778 (21.1%) deaths respectively; cerebrovascular diseases was in the third position with 913 (10.8%) deaths.

The distribution of deaths by Chapter of the International Classification of Diseases (10th Revision) showed that Diseases of the Circulatory System (Chapter IX) were responsible for 37.3% of the deaths. Endocrine nutritional and metabolic diseases (chapter 1V) with 21.4% of the deaths were in second place followed by Neoplasms (10.6%).

Of the 889 deaths due to Neoplasms in 2005, the most common types of cancer were that of trachea, bronchus and lung with 12.3%, female breast with 9.9%, stomach with 8.1% and colon with 6.6%. 36 persons died due to leukaemia (4.0%)

Of the 501 deaths due to external causes in 2005, 26.3% were due to Transport Accidents, 30.9% due to Other accidents and 20.4% due to Suicides. 45 persons died due to Assaults (9%)

Congenital anomalies with 61 deaths, that is 25.7% of the total (237), were the principal killers of children under the age of one year in 2005. The other principal causes of infant deaths were slow fetal growth, fetal malnutrition and disorders related to short gestation and low birth weight, responsible for 53 (22.4%) of the deaths, and septicaemia and infections specific to the perinatal period with 22 (9.3%) deaths.

Four maternal deaths were registered in 2005; one death (aged 39) was due to eclampsia, one (aged 34) due to postpartum haemorrhage, one (aged 33) due to disruption of obstetric wound and one (aged 30) due to antepartum haemorrage.
TRENDS IN CAUSE-SPECIFIC MORTALITY

In 2005, Mauritius adopted the 10th Revision of the International Classification of Diseases (ICD-10) for mortality coding. This shift and other improvements in the coding process have resulted into discontinuities in trends in certain specific causes of death. Percentages of death due to a few major diseases relating to previous years need to be adjusted for comparison purpose.

<table>
<thead>
<tr>
<th>% underlying cause of death over total death registered</th>
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<tbody>
<tr>
<td>ICD – 8</td>
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<td>----------------------------</td>
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<tr>
<td>Total Deaths:</td>
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</table>

**CAUSE:**

**Heart Diseases(%):** 17.2 18.4 19.7 20.4 21.5 21.8 22.8

**Cerebrovascular Diseases(%):** 8.4 8.7 9.1 9.3 9.6 9.8 10.8

**Other Diseases of Circulatory system(%):** 2.8 3.2 3.6 3.8 4.2 4.2 3.7

**All Circulatory(%) :** 28.4 30.3 32.4 33.5 35.3 35.8 37.3

**Diabetes Mellitus(%):** 2.7 5.4 7.8 12.2 14.8 19.0 21.1

**Total Circulatory and D.M.(%):** 31.1 35.7 40.2 45.7 50.1 54.8 58.4

NB: All percentages pertaining to the year 2000 and previous years have been adjusted in light of the 2005 figures.

Out of the 8,422 deaths registered in 2005, 37.3% were due to “Diseases of the Circulatory System” and 21.1% due to “Diabetes Mellitus”. “Heart diseases” represented 22.8% of all deaths. Of all persons for whom “Diabetes Mellitus” was assigned as the underlying cause of death in 2005, 40% ultimately died with “Heart diseases” and another 30% with “Cerebrovascular diseases” as their direct cause of death.

The 30 year mortality trends indicate a slow and almost constant increase in the percentages of death due to “Heart diseases”. On the other hand, a more rapid increase is noted in regards to “Diabetes mellitus”.

Taken together, “Diseases of the Circulatory System” and “Diabetes Mellitus” accounted for 58.4% of all deaths in 2005, almost twice as compared to 31.1% in 1975.