

# Patterns of Stroke Care in ABPM-JAY beneficiaries in empaneled hospitals of PM-JAY Scheme

Prepared in collaboration with

ICMR-NCDIR Bengaluru and National Health Authority (NHA)



- Dr. Prashant Mathur  
Director, ICMR-NCDIR Bengaluru
- Dr. Sukanya R, Scientist -E
- Dr. K Vaitheeshwaran, Scientist -D
- Dr. Deepadarshan H, Scientist – B
- Mr. Rahul Rajendra Koli, Technical Assistant
- Dr Sudha Chandrasekhar  
Executive Director; Health Policy & Quality Assurance & Hospital Engagement (NHA)
- Dr. Rimy Khurana; Dy Principal Consultant (NHA)

### ***Introduction and rationale:***

The Ayushman Bharat Pradhan Mantri Jan Aarogya Yojna (AB PM-JAY) is the largest government funded health insurance scheme of Government of India, to cover over 10 crore families with coverage up to ₹ 5 lakh per family per year, for accessing secondary and tertiary level health care.<sup>1,2</sup> A large number of public and private hospitals are empanelled under the scheme across the country, covering almost all secondary and many tertiary hospitalizations<sup>2</sup> The National Health Authority (NHA) has developed and included several Standard Treatment Packages (STGs) so as to standardize health care packages under the AB PM-JAY scheme. This is an ongoing process to improve the health care utilisation of the services provided by the empanelled hospitals.

Stroke is one of the leading causes of death and disability in India and globally<sup>3</sup>. Access to stroke care is limited by availability and affordability of treatment services, and consequent costs of on-going rehabilitation and long term-care borne by family members that further impoverish households. There is also disparity in access to acute stroke care based on the geography (urban vs rural), gender and economic resources<sup>4,5,6</sup>. The AB- PM JAY goal is to enhance access to quality healthcare, timely treatment, improvements in health outcomes and at the same time avert out of pocket expenses for the socio-economically underprivileged sections of India's population. In this context, NHA and ICMR-National Centre for Disease Informatics and Research (NCDIR) have developed this working paper to describe the pattern of stroke services available and pattern of stroke and its outcomes among beneficiaries in hospitals treated under the AB-PM-JAY scheme. This working paper shall provide the baseline data analytics for understanding the utilisation of stroke packages across many states in India.

### ***Methodology:***

Anonymised data based on grouping of package and procedure codes for stroke availed by PMJAY beneficiaries was extracted for the reference period of August 2019 to March 2021. The data was available for the following variables: state, public/ private service provider, age, sex of beneficiary, package and procedure codes of treatment availed, and outcome of vital status in-hospital / at discharge. The procedure codes were assigned into type of stroke [ MG049A, MG049C and MP017A were grouped as Ischemic stroke; MG049D, MP009A, SN009B and SN023A were grouped as haemorrhagic stroke; and MG048A and MG049B were grouped as undetermined stroke]. The type of intervention (medical / surgical) was based on package and procedure codes. Data available for 19 states/UTs in the PM-JAY Transaction management system was abstracted. Eleven states/UT that reported 100 cases and above was included for data analysis. Frequency distribution of age, sex of beneficiaries, type of stroke, intervention received and in-hospital mortality were calculated and analysed.

### ***Results:***

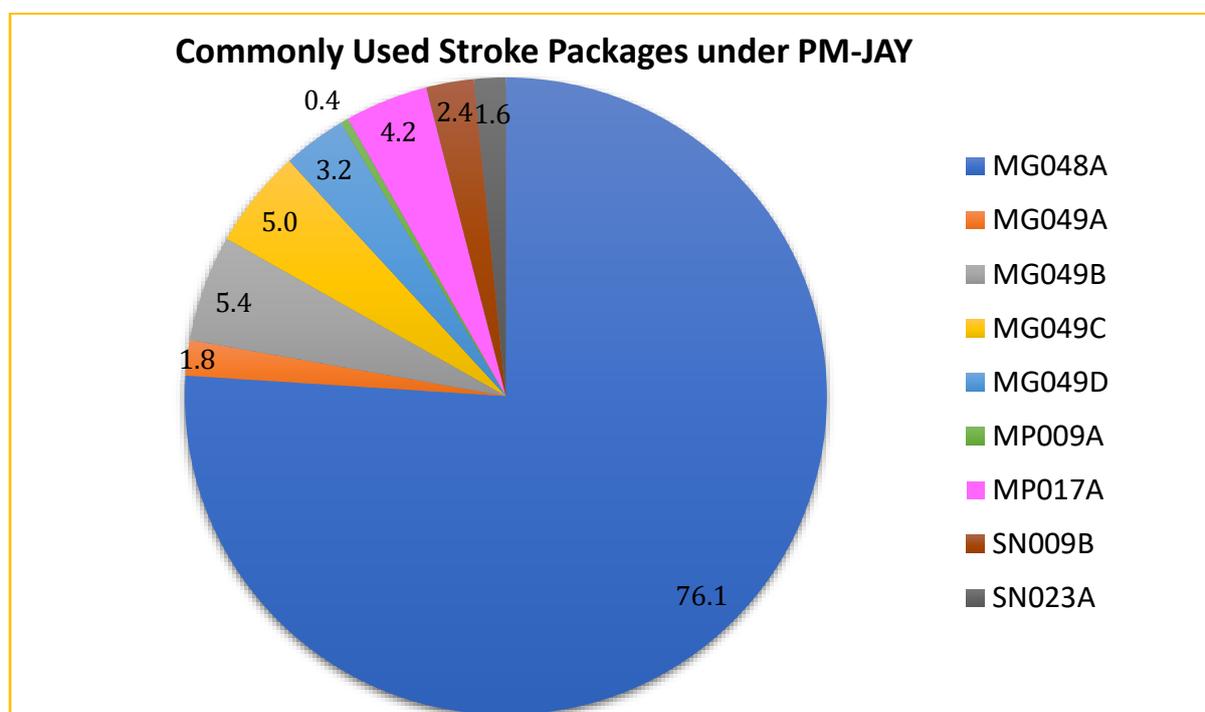
#### **STROKE PACKAGES**

Data was available for nine stroke packages (7 medical and 2 surgical). The most common stroke package availed was cerebrovascular accident (76.1%) (Table 1 and Fig 1) .

**Table- 1: Frequency distribution by Stroke procedure code and package**

Package name	Procedure code	Procedure name	Procedure Count	Percentage
Cerebrovascular accident	MG048A	Cerebrovascular accident	12309	76.1
Cerebral sino-venous thrombosis / Stroke	MG049A	Cerebral sino-venous thrombosis	295	1.8
Cerebral sino-venous thrombosis / Stroke	MG049B	Acute stroke	871	5.4
Cerebral sino-venous thrombosis / Stroke	MG049C	Acute ischemic stroke	803	5.0
Cerebral sino-venous thrombosis / Stroke	MG049D	Acute haemorrhagic stroke	524	3.2
Intracranial haemorrhage	MP009A	Intracranial haemorrhage	59	0.4
Acute ischemic stroke	MP017A	Acute ischemic stroke	672	4.2
Surgery for Haematoma - Intracranial	SN009B	Hypertensive	392	2.4
Aneurysm Clipping including angiogram	SN023A	Aneurysm Clipping including angiogram	254	1.6
<b>Total</b>			<b>16179</b>	<b>100.0</b>

**Fig 1: Commonly Used Stroke Packages under PM-JAY**

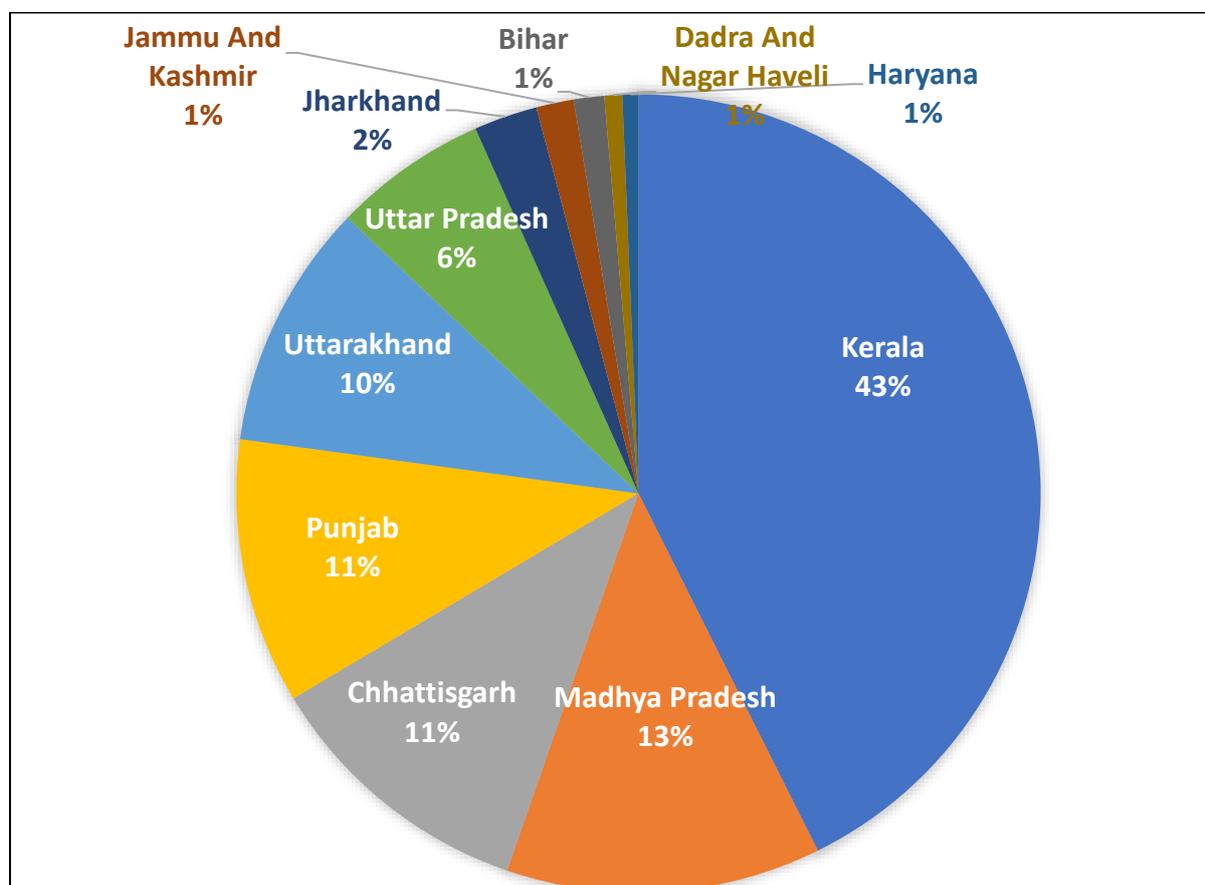


Nine states and 2 UTs reported 16179 patients who had availed stroke packages from 835 hospitals [536 private and 299 public health facilities]. Kerala reported the maximum number of stroke packages (42%) followed by Madhya Pradesh (13%), Chhattisgarh (11%), Punjab (11%), Uttarakhand (10%) and Uttar Pradesh (6%). (Fig 2)

**Table 2: Distribution of beneficiaries of stroke packages in states/UTs**

State Name	Private		Public		Total	(%)
	n	%	n	%		
Kerala	1331	19.3	5568	80.7	6899	42.6
Madhya Pradesh	1141	55.7	907	44.3	2048	12.7
Chhattisgarh	162	9.0	1636	91.0	1798	11.1
Punjab	1303	74.8	438	25.2	1741	10.8
Uttarakhand	1314	81.6	302	18.8	1610	10.0
Uttar Pradesh	588	58.3	420	41.7	1008	6.2
Jharkhand	200	48.4	213	51.6	413	2.6
Jammu And Kashmir	15	6.1	229	93.9	244	1.5
Bihar	29	14.6	169	85.4	198	1.2
Dadra And Nagar Haveli	0	0.0	116	100.0	116	0.7
Haryana	77	74.0	27	26.0	104	0.6
<b>Grand Total</b>	<b>6160</b>	<b>38.1</b>	<b>10025</b>	<b>62.0</b>	<b>16179</b>	<b>100.0</b>

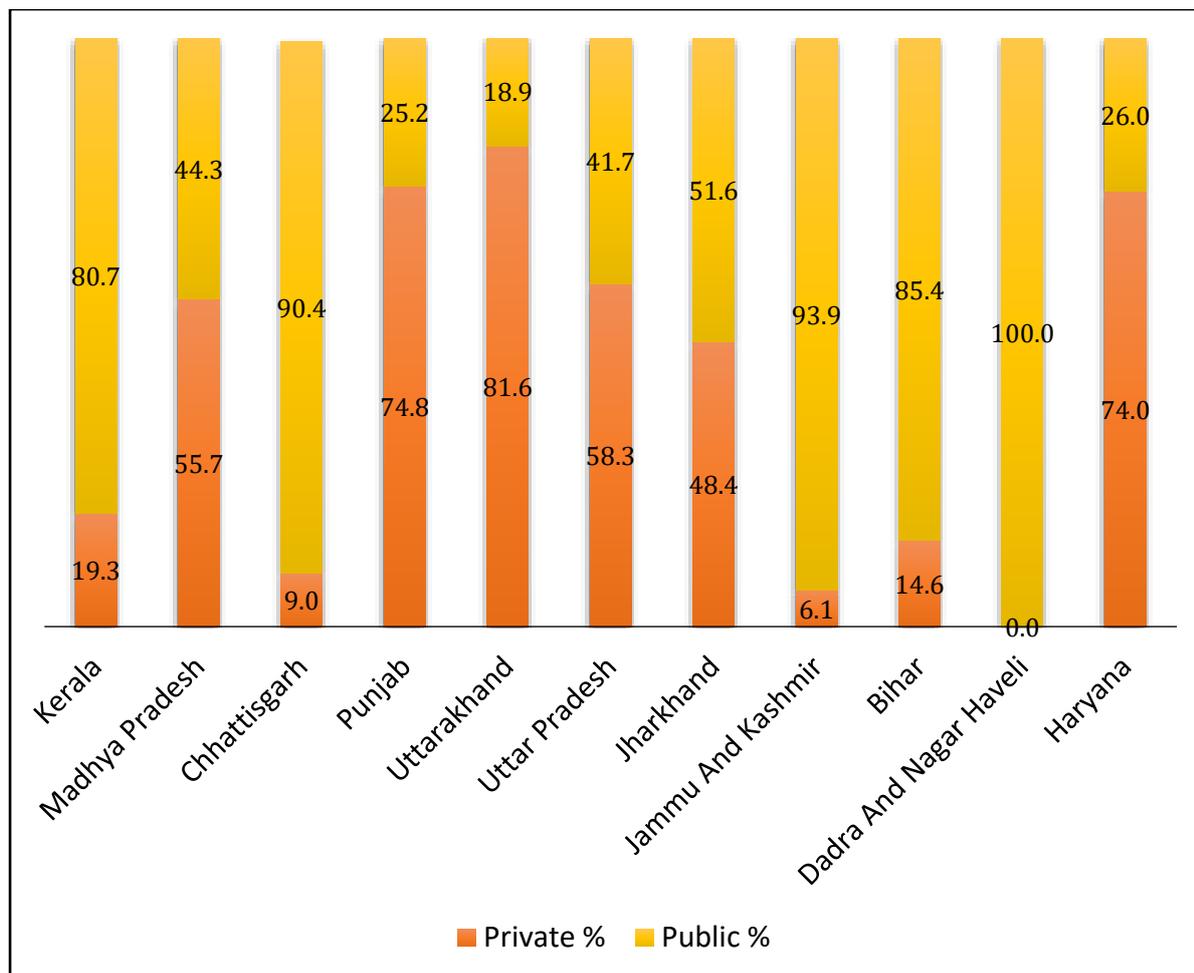
**Fig 2: Distribution of beneficiaries of stroke packages in states/UTs**



### TYPE OF EMPANELLED HOSPITALS

Sixty-two percentage of beneficiaries in all the States/UTs were treated in public hospitals. The pattern of public and private hospitals that treated beneficiaries under stroke packages varied across the states. In five States and UT, majority of patients were treated in public hospitals (Kerala-81%, Chhattisgarh-91%, J&K-94%, Bihar-85.4%r and Dadra-100%) (Fig 3). Empanelled hospitals in the private sector provided majority of stroke services in the states of Punjab (75%), Uttarakhand (82%), Haryana(74%). In 3 states of Madhya Pradesh, Uttar Pradesh and Jharkhand, both private and public hospitals had provided stroke packages.

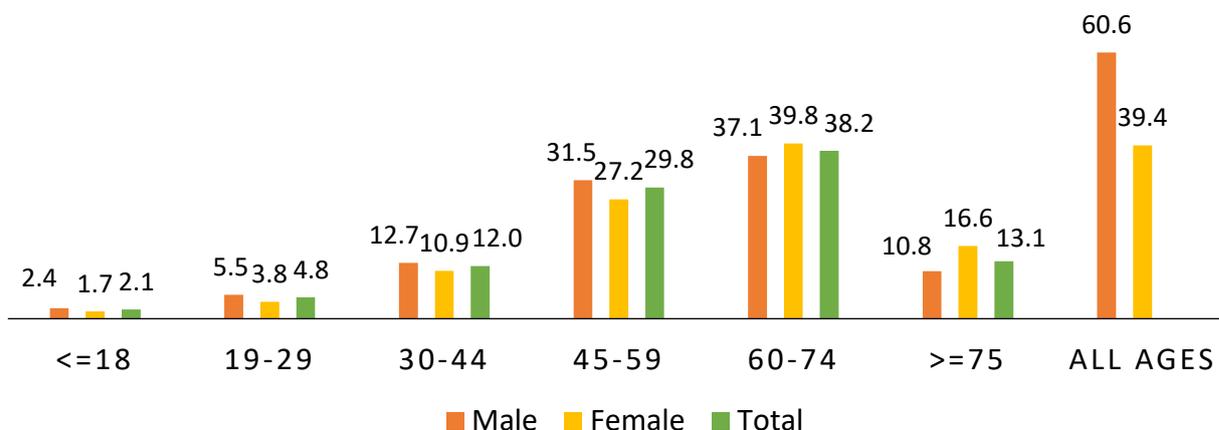
**Fig 3: Distribution of beneficiaries by type of empanelled hospitals that provided stroke packages in states/UTs**



### AGE AND SEX DISTRIBUTION OF BENEFICIARIES

Age and sex wise distribution of stroke beneficiaries is depicted in Figure 4. Males constituted 61% and females were 39% of all beneficiaries. With increase in age, the proportion of beneficiaries increased, and maximum proportion was seen in age 60-74 in both men and women. Proportion of women in 60-74 and 75+ was higher than the men in these age groups.

**FIG4 : DISTRIBUTION OF BENEFICIARIES BY AGE GROUP IN MALES(N=9773) AND FEMALES(N=6347) (%)**



**Table 3: Mean age by sex of beneficiaries in all states/UTs**

State	Mean age		
	Male	Female	Both sexes
Bihar	58.9	53.7	56.9
Chhattisgarh	<b>42.0</b>	<b>49.0</b>	<b>44.1</b>
Dadra And Nagar Haveli	56.4	56.1	56.4
Haryana	54.1	59.8	56.3
Jammu And Kashmir	<b>63.2</b>	60.5	62.0
Jharkhand	54.3	54.0	54.2
Kerala	62.4	<b>66.3</b>	<b>64.1</b>
Madhya Pradesh	55.0	54.0	54.6
Punjab	58.1	59.1	58.5
Uttar Pradesh	55.4	53.6	54.7
Uttarakhand	56.6	58.4	57.3
Overall	56.9	60.5	58.3

The mean age ranged from 42 (Chhattisgarh) to 63.2 (J &K) among males and 49 (Chhattisgarh) to 66.3 (Kerala) among females.

The below table 4 depicted the proportions of males and females in seeking public or private empanelled hospitals. Majority of males and females had been treated in public hospitals in Kerala and Chhattisgarh. The proportion of females seeking private hospitals was higher as compared to males in these States and this was statistically significant. In Madhya Pradesh, male beneficiaries had been treated in private hospitals as compared to public hospitals.

**Table 4: Distribution of male and females beneficiaries by type of empanelled hospital that provided treatment**

State		Public		Private		Total	p values
		n	%	n	%	n	
Kerala (N=6899)	Male	3195	81.8	713	18.2	3908	0.012
	Female	2373	79.3	618	20.7	2991	
Chhattisgarh(N=1798)	Male	1162	91.9	103	8.1	1265	0.048
	Female	474	88.9	59	11.1	533	
Madhya Pradesh(N=2048)	Male	539	41.6	756	58.4	1295	0.001
	Female	368	48.9	385	51.1	753	
Punjab(N=1741)	Male	256	24.5	790	75.5	1046	0.420
	Female	182	26.2	513	73.8	695	
Uttar Pradesh(N=1008)	Male	248	40.7	361	59.3	609	0.453
	Female	172	43.1	227	56.9	399	
Jharkhand(N=413)	Male	133	53.2	117	46.8	250	0.413
	Female	80	49.1	83	50.9	163	
Uttarakhand (N=1616)	Male	176	17.3	840	82.7	1016	0.054
	Female	126	21.2	468	78.8	594	
Bihar(N=198)	Male	105	85.4	18	14.6	123	0.995
	Female	64	85.3	11	14.7	75	
Dadra And Nagar Haveli(N=116)	Male	86	100.0	0	0.0	86	NA
	Female	30	100.0	0	0.0	30	
Jammu And Kashmir(N=244)	Male	130	91.5	12	8.5	142	0.077
	Female	99	97.1	3	2.9	102	
Haryana(N=104)	Male	15	23.4	49	76.6	64	0.458
	Female	12	30.0	28	70.0	40	
Total	Male	6045	61.7	3759	38.3	9804	0.322
	Female	3980	62.4	2395	37.6	6375	

## TYPE OF STROKE

Figure 5 depicts pattern of type of stroke by age group among the beneficiaries. Undetermined stroke was the most common type, followed by ischemic (10.9 %) and haemorrhagic stroke (7.6%) in all age groups.

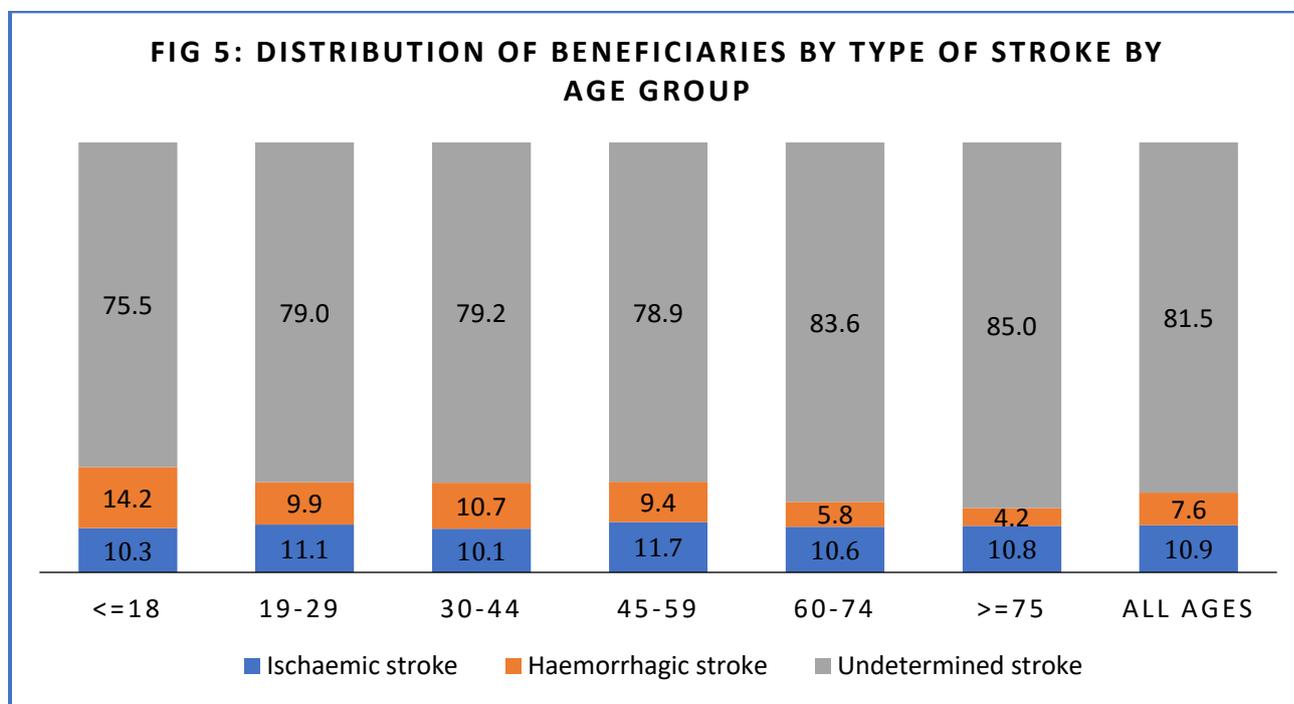


Table 5 depicts the pattern of type of stroke in males and females in different age groups. Ischemic and Haemorrhagic stroke is more in females in younger age group (<30 years) as compared to males. Undetermined stroke is the most common type in both males and females in all age groups.

**Table 5 : Distribution of type of stroke in males and females in all age -groups**

Age Group	Male							Female						
	Ischaemic stroke		Haemorrhagic stroke		Undetermined stroke		Total	Ischaemic stroke		Haemorrhagic stroke		Undetermined stroke		Total
	N	%	n	%	n	%	n	n	%	n	%	n	%	n
<=18	18	7.7	26	11.2	189	81.1	233	17	16.0	22	20.8	67	63.2	106
19-29	41	7.6	45	8.4	451	84.0	537	46	18.9	32	13.1	166	68.0	244
30-44	120	9.6	129	10.3	998	80.0	1247	77	11.1	78	11.2	539	77.7	694
45-59	371	12.0	264	8.5	2456	79.5	3091	195	11.3	187	10.8	1350	77.9	1732
60-74	401	11.0	211	5.8	3022	83.2	3634	254	10.0	147	5.8	2140	84.2	2541
>=75	113	10.6	46	4.3	903	85.0	1062	117	11.1	42	4.0	899	85.0	1058
<b>Total</b>	<b>1064</b>	<b>10.9</b>	<b>721</b>	<b>7.4</b>	<b>8019</b>	<b>81.8</b>	<b>9804</b>	<b>706</b>	<b>11.1</b>	<b>508</b>	<b>8.0</b>	<b>5161</b>	<b>81.0</b>	<b>6375</b>

## TYPE OF TREATMENT

Distribution of type of treatment in male and females across age-groups is depicted in Table 6. Medical packages were most common in all age groups and in both sexes. Surgical treatment was 4 % of all packages, and was maximum among males in age group of 30-44 (6.6) and females in age group of 45-59 years(7.0%).

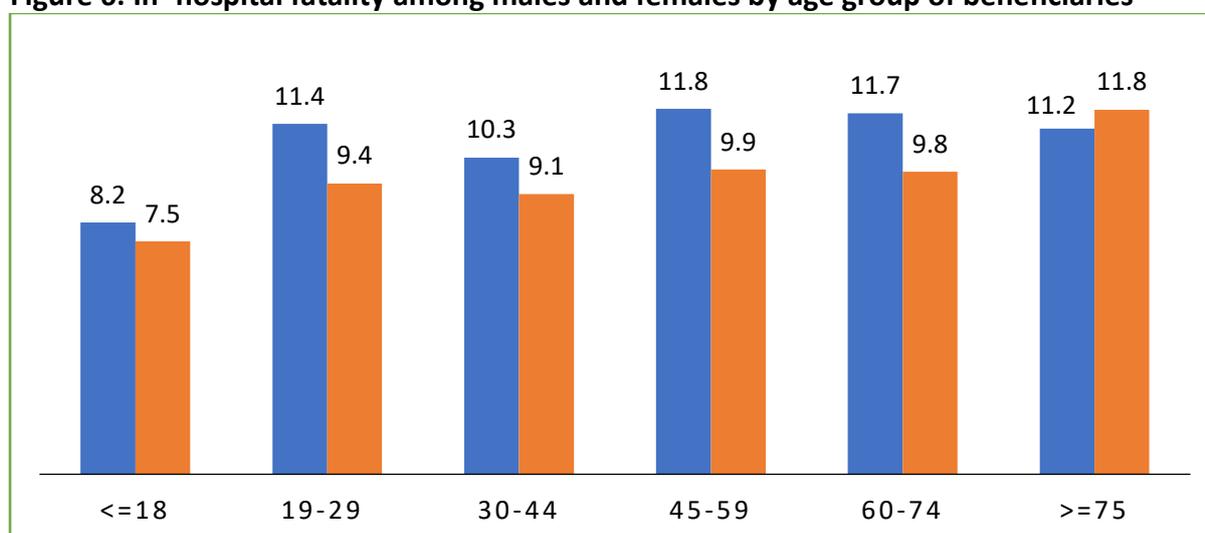
**Table 6: Type of intervention (medical/surgical) received by the beneficiaries by age group in Males and Females**

Age Group	Male					Female					Total				
	Medical		Surgical		Total	Medical		Surgical		Total	Medical		Surgical		Total
	n	%	n	%	n	n	%	n	%	n	n	%	n	%	n
<=18	226	97.0	7	3.0	233	102	96.2	4	3.8	106	328	96.8	11	3.2	339
19-29	517	96.3	20	3.7	537	231	94.7	13	5.3	244	748	95.8	33	4.2	781
30-44	1165	93.4	82	6.6	1247	651	93.8	43	6.2	694	1816	93.6	125	6.4	1941
45-59	2943	95.2	148	4.8	3091	1611	93.0	121	7.0	1732	4554	94.4	269	5.6	4823
60-74	3533	97.2	101	2.8	3634	2465	97.0	76	3.0	2541	5998	97.1	177	2.9	6175
>=75	1050	98.9	12	1.1	1062	1039	98.2	19	1.8	1058	2089	98.5	31	1.5	2120
<b>Total</b>	<b>9434</b>	<b>96.2</b>	<b>370</b>	<b>3.8</b>	<b>9804</b>	<b>6099</b>	<b>95.7</b>	<b>276</b>	<b>4.3</b>	<b>6375</b>	<b>15533</b>	<b>96.0</b>	<b>646</b>	<b>4.0</b>	<b>16179</b>

## MORTALITY

In-hospital case fatality proportions was higher in men than women in all age-groups except age >75 years, where the higher proportion of deaths in women as compared to men was statistically significant (  $p < 0.0001$  ) ( table not shown)

**Figure 6: In -hospital fatality among males and females by age group of beneficiaries**



Maximum proportion of deaths occurred 0 to 7 days from admission to hospital (74.3%) and 97% of deaths occurred within 28 days of hospital admission in pooled data of states/UTs. Mortality on same of day of admission was <5% and ranged from 2% in Uttarakhand to 10 % in Chhattisgarh (Table 7)

**Table 7. State wise distribution of in-hospital deaths from the date of admission**

State	Stroke admission to death in days (n)					Total deaths
	Same day	1 to 7 days	8 to 14 days	15-28 days	>28 days	
Kerala (N=6899)	15(2.6)	406(71.1)	101(17.7)	37(6.5)	12(2.1)	571(100)
Chhattisgarh(N=1798)	40(10)	265(65.9)	60(14.9)	24(6)	13(3.2)	402(100)
Madhya Pradesh(N=2048)	5(2.7)	119(65)	41(22.4)	11(6)	7(3.8)	183(100)
Punjab(N=1741)	7(3.9)	130(73)	32(18)	6(3.4)	3(1.7)	178(100)
Uttar Pradesh(N=1008)	10(7)	107(75.4)	21(14.8)	4(2.8)	0(0)	142(100)
Jharkhand(N=413)	1(3.4)	24(82.8)	4(13.8)	0(0)	0(0)	29(100)
Uttarakhand (N=1616)	4(2)	122(61)	38(19)	22(11)	14(7)	200(100)
Bihar(N=198)	0(0)	13(92.9)	0(0)	1(7.1)	0(0)	14(100)
Dadra And Nagar Haveli(N=116)	1(7.1)	13(92.9)	0(0)	0(0)	0(0)	14(100)
Jammu And Kashmir(N=244)	1(5.3)	16(84.2)	2(10.5)	0(0)	0(0)	19(100)
Haryana(N=104)	0(0)	7(100)	0(0)	0(0)	0(0)	7(100)
<b>Grand Total</b>	<b>84(4.8)</b>	<b>1222(69.5)</b>	<b>299(17)</b>	<b>105(5.9)</b>	<b>49(2.8)</b>	<b>1759(100)</b>

## DISCUSSION

The paper provides a baseline description of the utilisation of the stroke packages in the empanelled hospitals in 11 states and UTs. In the study period, 835 hospitals had provided treatment services for stroke in the 9 states and 2 UTs. Among these, 35% were public hospitals which treated 62% of beneficiaries for stroke. Beneficiaries were treated in public hospitals in Kerala, Chhattisgarh, J & K, Bihar and Dadra, Nagar Haveli as compared to other states. A recent study based on the National Sample Survey Organisation data had shown that women with stroke availed treatment in public hospitals more commonly as compared to men(1). The AB-PMJAY data has a varying pattern of public vs private facility among men and women beneficiaries. In the states of high volume of Kerala and Chhattisgarh, higher proportion of women took treatment in private facilities as compared to men (Table 4). The paper has highlighted the volume of the stroke packages in these states/UTs with potential for increasing coverage of the services through public and private hospitals. The overall utilisation of public or private hospitals for stroke packages may be dependent on the location of the hospital, availability of stroke management services, and quality of services provided.

Highest proportion of beneficiaries were in the age group of 60-74 (38%), followed by 45-59 (29.8%), similar to the age pattern distribution in the PBSRs in India (2). Mean age for stroke ranged from 58-67 years in different population-based studies in India (3). In the 11 states/UTs, the mean age ranged from 44 years in Chhattisgarh to 64 years in Kerala. Young stroke (Proportion of stroke in < 45 years) was 18.9 %, as compared to studies in India with range of 4 to 20 %(4). Population based registry data (PBSR) in India have shown that 11% of stroke registrations were in the age group of 18 to 44 years (2).

Stroke is one of the top ten leading causes of DALYs in all the states in India and it varied six fold within the states in 2016 (5). The DALY rate was highest in eastern (west Bengal, Odisha) and North eastern (Assam, Tripura) and Central (Chhattisgarh) states. The recent data from the National Stroke Registry Programme showed that crude incidence for stroke in India ranged from 96.6-187.6 per lakh population in the areas of Cachar, Kota, Varanasi, Tirunelveli and Cachar population based registries. These population level data on stroke burden highlight the need for stroke services to reduce the disability and mortality due to stroke. There is no clear picture on the availability of stroke services in India. In 2012, there were 100 centres that provided thrombolysis and 35 stroke units that had the resources to provide comprehensive management for stroke and 79 % of stroke patients had neuroimaging (6). Recent data in 2018 -2019 show that imaging was available in 72 % of registered stroke cases in Cachar district, Assam to > 80 % imaging done in stroke patients in other registries of Cuttack , Tirunelveli, Kota and Varanasi (2). Structured data on the diagnosis of stroke by imaging with CT or MRI details from imaging and confirmation on type of stroke was not available.

Type of stroke was derived from the procedure and package codes (Table 1) and code MG048A (Cerebrovascular Accident-CVA) was the most common stroke package used in all states. There is underreporting of proportions of ischemic and haemorrhagic stroke recorded in the states /UTs as compared to recent studies that revealed that ischemic stroke is the most common type of stroke in both men and women in rural and urban populations in India (2,3). Statewise distribution of type of stroke is crucial to understand the stroke burden among the populations for planning stroke services.

Maximum deaths occurred within one week of admission to hospital and this may reflect the maximum mortality from onset of stroke. Proportion of in-hospital fatality at day 28 after admission is 10.6% of all beneficiaries. This is lesser than the case fatality at 28 days after onset of stroke reported in Kota PBSR (12.9%). Ideally, data on onset of stroke, date of admission can help to understand delay in access to treatment, and vital status of all beneficiaries at day 28 after onset of stroke is necessary for measuring case fatality proportions at day 28. This is an important indicator of stroke mortality to guide and monitor hospital services and health programmes.

Availability and utilisation of thrombolysis (7), secondary prevention of stroke and post stroke rehabilitation (1) are all determinants of outcomes among stroke patients. Non-availability of structured data on variables of stroke management limit the current analysis. The analysis of utilisation of stroke packages across public and private hospitals in these 11 states/UTs has

indicated that stroke management is an important component covered by the AB-PMJAY scheme.

## **WAY FORWARD**

With efforts to revise the stroke treatment packages recently announced by the NHA, the AB-PM-JAY scheme is well-positioned to improve access to acute stroke care through early detection of stroke and management to prevent secondary complications, for the socioeconomically disadvantaged population in India. The following points are recommended for strengthening the stroke services in the empanelled hospitals:

- 1) Compliance to stroke packages integrated with the standard treatment workflows of stroke (ICMR, NPCDCS) so that standardized stroke management is ensured.
- 2) Standard data inputs to be collated through the software systems of the AB-PMJAY that include detailed information on date of onset of stroke, type of imaging done, diagnostic details on type of stroke, nature of stroke (new, recurrent), thrombolysis given for ischemic stroke, other treatments, surgery, and clinical outcomes at discharge and day 28 after onset of stroke. In order to collect standard data, the variables listed (Annexure 1) may be included from the Hospital based stroke registry (HBSR) Core Form (Annexure 2) of the National Stroke Registry Programme.
- 4) A state wise assessment of stroke care services may be described by developing specific case studies in few states to understand the barriers and facilitators in providing stroke care management.
- 5) Quality of care indicators on management of stroke may be developed to assess current status of empanelled hospitals, monitor the services provided and evaluate the yearly progress in strengthening services.
- 6) Hospitals that provide stroke services may be encouraged to join the Hospital based stroke registry programme so that patterns of treatment provided and clinical outcomes may be recorded in a systematic manner. A hospital based registry is a fulcrum for monitoring pattern and quality of care in a hospital.
- 7) A hospital based assessment tool to signify the level of care available in each of the empanelled hospitals may be developed. This shall include parameters on case load, early diagnosis and treatment initiation, completion of treatment in hospital, clinical outcomes, post-stroke rehabilitation measures etc.

## References

1. Vijayan B, Ramanathan M, Rangamani S, Joe W, Gopinathan S, Mishra US. Treatment and rehabilitation of stroke patients in India: A gendered analysis based on repeated cross-sectional national sample surveys on health, 2014 and 2019, Health Care for Women International, 2021. DOI: 10.1080/07399332.2021.1931226
2. ICMR-NCDIR, Stroke Incidence and Mortality: A Report of the Population Based Stroke Registries, India (National Stroke Registry Programme), 2021, Bengaluru, India
3. Jones SP, Baqai K, Clegg A, Georgiou R, Harris C, Holland EJ, Kalkonde Y, Lightbody CE, Maulik PK, Srivastava PM, Pandian JD, Kulsum P, Sylaja PN, Watkins CL, Hackett ML. Stroke in India: A systematic review of the incidence, prevalence, and case fatality. *Int J Stroke*. 2022 Feb;17(2):132-140. doi: 10.1177/17474930211027834. Epub 2021 Jul 2. PMID: 34114912; PMCID: PMC8821978.
4. Tripathi M, Vibha D. Stroke in young in India. *Stroke Res Treat*. 2010 Dec 16;2011:368629. doi: 10.4061/2011/368629. PMID: 21234342; PMCID: PMC3017944.
5. Indian Council of Medical Research, Public Health Foundation of India, and Institute for Health Metrics and Evaluation. India: Health of the nation's states: The India State-level disease burden Initiative. New Delhi, India: ICMR,PHFI and IHME; 2017
6. Suwanwela NC, Pongvarin N, the Asian Stroke Advisory Panel. Stroke burden and stroke care system in Asia. *Neurol India* 2016 ;64, Suppl S1:46-51. Available from: <https://www.neurologyindia.com/text.asp?2016/64/7/46/178042>
7. Pandian JD, Sudhan P. Stroke epidemiology and stroke care services in India. *J Stroke*. 2013 Sep;15(3):128-34. doi: 10.5853/jos.2013.15.3.128. Epub 2013 Sep 27. PMID: 24396806; PMCID: PMC3859004.

## Annexure 1

### HBSR core form data fields for NHA TM system

1. Name of participating centre (hospital) , district, pincode
- 2 Name of Department/Unit/Physician\*
3. Place of residence: Urban/ rural
- 4 Name of District with pincode ( of patient) \*
5. Age in years \*
6. Sex\*
7. Date of onset of this episode of stroke
- 8.7 Date and time of arrival at the reporting institution / hospital\* [Date of admission]
9. Date of diagnosis of stroke at the reporting institution / hospital
10. Clinical findings at the reporting institution ( \* are mandatory) ( mark as 1. Yes 2.No)

a) Unilateral or bilateral motor impairment * (including lack of coordination)	
b) Unilateral or bilateral sensory impairment	
c) Aphasia/dysphasia (non-fluent speech) *	
d) Hemianopia (half-sided impairment of visual fields)	
e) Forced gaze (conjugate deviation)	
f) Apraxia	
g) Ataxia	
h) Perception deficit	
i) None	

11. Other clinical features ( mark as 1. Yes 2.No )

a) Dizziness, vertigo
b) Localized headache
c) Blurred vision of both eyes
d) Diplopia
e) Dysarthria (slurred speech)
f) Impaired cognitive function (including confusion)
g) Impaired consciousness*
h) Seizures
i) Dysphagia

12. Stroke severity score at admission\*: total NIHSS score (0-42)

a) Level of consciousness(0-3)	<input type="checkbox"/>
b) LOC Questions(0-2)	<input type="checkbox"/>
c) LOC Commands(0-2)	<input type="checkbox"/>
d) Best gaze(0-2)	<input type="checkbox"/>
e) Visual fields(0-3)	<input type="checkbox"/>
f) Facial palsy(0-3)	<input type="checkbox"/>
g) Motor arm (0-4) Left ; Right	<input type="checkbox"/>
h) Motor leg(0-4) Left ; Right	<input type="checkbox"/>
i) Limb ataxia(0-2)	<input type="checkbox"/>
j) Sensory(0-2)	<input type="checkbox"/>
k) Best language(0-3)	<input type="checkbox"/>
l) Dysarthria(0-2)	<input type="checkbox"/>
m) Extinction and inattention(0-2)	<input type="checkbox"/>
TOTAL NIHSS	

13. Diagnostic procedure\* :

	1. Yes 2. No	Date	Imaging findings
First CT Brain*			
MRI Brain			
CT-Angio			
MR-Angio			
CT/ MR perfusion			

14. Imaging time at reporting institution (time of registration to imaging time at Reporting Institution)

1. 0-45 min 2. >45 min to 3 hours 3. >3 to ≤ 6 hours 4. > 6 hours to ≤ 24 hours 5. >24 hours

15. Type of stroke\*

Ischemic

Intracerebral haemorrhage

Subarachnoid haemorrhage

Venous stroke

16. Final Diagnosis\*:

First ever/ recurrent

Type of stroke

Territory of brain affected

Etiology

Risk factors & co-morbidities 1. Yes 2. No

- a) Previous Stroke
- b) Previous TIA
- c) Hypertension
- d) Diabetes Mellitus
- e) Cardiovascular disease , specify
- f) Family history of Stroke
- g) Tobacco Use ( smoking)
- h) Tobacco use ( smokeless)
- i) Alcohol use
- j) Any other
- k) None

17. Was thrombolytic treatment given?\* 1. Yes 2. No

18. Time of initiating thrombolytic treatment after symptom onset

19. Name the medications received after stroke onset while in hospital \*

	Yes	No	Unknown
Antiplatelets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If yes, specify name.....

Anticoagulants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antihypertensive drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lipid lowering drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Surgical/ interventional treatment\* 1. Yes 2. No

- a) Hemispherectomy b) Hematoma evacuation c) Carotid artery endarterectomy
- d) Carotid stenting e) Endovascular coiling f) Others, specify

21. Non- medical test/management 1. Yes 2. No

- a) Swallowing management
- b) Occupational therapy
- c) Physiotherapy
- d) Speech therapy
- e) Bladder care
- f) Deep vein thrombosis prophylaxis

22. Swallowing test 1. Yes 2. No

23.. Date of discharge \*

24. Vital status at discharge \* 1. Alive 2. Dead

25. Functional status at discharge (mRS)\*

a) Patient doesn't have any symptoms?	<input type="checkbox"/>
b) Patient is able to carry out all usual duties and activities without any assistance ?	<input type="checkbox"/>
c) Patient can look after own affairs without assistance?	<input type="checkbox"/>
d) Patient requires some assistance in doing activities and can walk by himself or herself without any support ?	<input type="checkbox"/>
e) Patient needs assistance for walking and attending own needs?	<input type="checkbox"/>
f) Patient is bedridden/incontinent and requires constant care?	<input type="checkbox"/>
g) Is the patient dead?	<input type="checkbox"/>

26. If dead, date of death

27. Cause of death as per MCCD

Immediate

Underlying/Antecedent cause

Other contributing conditions



**I. IDENTIFYING INFORMATION**

1. Name of Participating Centre : ..... Code

2. HBSR Registration Number :

3. Registration at Reporting Institution : Out Patient  In Patient

3.1 Name of Source of Registration : ..... Code

3.2 Name of Department / Unit / Physician : ..... Code

3.3 Hospital Registration Number:

4. Full Name: .....  
(Title) (First) (Middle) (Last)

5. Place of residence (*place of usual residence where the patient has been residing for the past 1 year*):

5.1 Urban Areas (Town / Cities)

5.2 Non-Urban Areas (Town / Cities)

House No. ....

House No. ....

Road / Street Name .....

Name of Gram Panchayat / Village etc. ....

Area / Locality .....

.....

Ward / Corporation / Division .....

Name of Sub-Unit of District (*Taluk/ Tehsil/ Other*) .....

.....

.....

Name of the City / Town .....

Name of PHC / Sub-Centre .....

Name of District (*in capitals*) .....

Postal Pin Code

Telephone . 1. ....

Telephone . 2. ....

Mobile No. 1. ....

Email : .....

2. ....

5.3 Other address:

Address : .....

District : .....

Pin Code :

Telephone No.: : 1..... 2..... 3.....

6. Duration of stay [at the place of usual residence (*in years*) ]

7. Age (*years*):

8. Date of Birth:

9. Sex: Male  Female  Others  .....

10. Number of languages spoken (*Multiple options can be chosen*)

Assamese	<input type="checkbox"/>	Bengali	<input type="checkbox"/>	Gujarati	<input type="checkbox"/>	Hindi	<input type="checkbox"/>	Kannada	<input type="checkbox"/>	Kashmiri	<input type="checkbox"/>	Malayalam	<input type="checkbox"/>
Marathi	<input type="checkbox"/>	Oriya	<input type="checkbox"/>	Punjabi	<input type="checkbox"/>	Sanskrit	<input type="checkbox"/>	Sindhi	<input type="checkbox"/>	Tamil	<input type="checkbox"/>	Telugu	<input type="checkbox"/>
Urdu	<input type="checkbox"/>	English	<input type="checkbox"/>	Konkani	<input type="checkbox"/>	Bhutia	<input type="checkbox"/>	Manipuri	<input type="checkbox"/>	Mizo	<input type="checkbox"/>	Nepali	<input type="checkbox"/>
Lepcha	<input type="checkbox"/>	Rajasthani	<input type="checkbox"/>	Others ( <i>specify</i> ).....							Unknown	<input type="checkbox"/>	

**II. DIAGNOSIS OF STROKE**

11.1 Patient last known or seen well : Date   Time:  :  am/pm

11.2 Date of onset of this episode of stroke : Date   Time:  :  am/pm

11.3 Is it a wake-up stroke ? (*symptoms of stroke first noticed on waking up from sleep*) Yes  No

11.4 Symptoms noticed at onset : Weakness/paresis of limbs  Dysphasia/aphasia   
 Altered level of consciousness  Others, specify.....

11.5 Date of recognition of first stroke symptoms/ signs by medical professional: Date   Time :  :  am/pm

11.6 From where did the patient come to reach the reporting hospital for treatment of their stroke?

Home	<input type="checkbox"/>	Other departments within reporting hospital	<input type="checkbox"/>
Other place of stroke onset	<input type="checkbox"/>	Others, specify .....	
Outpatient healthcare setting	<input type="checkbox"/>	Unknown	<input type="checkbox"/>
Inpatient health care setting	<input type="checkbox"/>		

11.7 Date and time of arrival at Reporting Institution : Date   Time:  :  am/pm

12. Date of diagnosis of stroke at the Reporting institution: Date

13. Diagnosis or history of recent TIA? Yes  No  Date

14. Clinical Information

14.1 Clinical findings at Reporting Institution :

Unilateral or bilateral motor impairment (including lack of coordination)	<input type="checkbox"/>	Unilateral or bilateral sensory impairment	<input type="checkbox"/>
Aphasia/dysphasia ( <i>non-fluent speech</i> )	<input type="checkbox"/>	Hemianopia ( <i>half-sided impairment of visual fields</i> )	<input type="checkbox"/>
Forced gaze ( <i>conjugate deviation</i> )	<input type="checkbox"/>	Apraxia	<input type="checkbox"/>
Ataxia	<input type="checkbox"/>	Neglect	<input type="checkbox"/>
None of the above	<input type="checkbox"/>	Others, Specify.....	<input type="checkbox"/>

14.2 Other clinical features :

Dizziness, vertigo	<input type="checkbox"/>	Localized headache	<input type="checkbox"/>
Blurred vision of both eyes	<input type="checkbox"/>	Diplopia	<input type="checkbox"/>
Dysarthria ( <i>slurred speech</i> )	<input type="checkbox"/>	Impaired cognitive function ( <i>including confusion</i> )	<input type="checkbox"/>
Impaired consciousness	<input type="checkbox"/>	Seizures	<input type="checkbox"/>
Dysphagia	<input type="checkbox"/>		

15.1 Stroke severity score at admission at Reporting Institution (*Record score for individual scale*) :

Level of consciousness(0-3)	<input type="checkbox"/>
LOC Questions(0-2)	<input type="checkbox"/>
LOC Commands(0-2)	<input type="checkbox"/>
Best gaze(0-2)	<input type="checkbox"/>
Visual fields(0-3)	<input type="checkbox"/>
Facial palsy(0-3)	<input type="checkbox"/>
Motor arm	
Left (0-4)	<input type="checkbox"/>
Right (0-4)	<input type="checkbox"/>
Motor leg	
Left (0-4)	<input type="checkbox"/>
Right (0-4)	<input type="checkbox"/>
Limb ataxia(0-2)	<input type="checkbox"/>
Sensory(0-2)	<input type="checkbox"/>
Best language(0-3)	<input type="checkbox"/>
Dysarthria(0-2)	<input type="checkbox"/>
Extinction and inattention(0-2)	<input type="checkbox"/>
<hr/>	
	<input type="checkbox"/> <input type="checkbox"/>

15.2 Status of the person prior to occurrence of stroke (*pre morbid modified Rankin scale*)

Symptoms	Score
Patient doesn't have any symptoms (0)	<input type="checkbox"/>
Patient is able to carry out all usual duties and activities without any assistance (1)	<input type="checkbox"/>
Patient can look after own affairs without assistance (2)	<input type="checkbox"/>
Patient requires some assistance in doing activities and can walk by himself or herself without any support (3)	<input type="checkbox"/>
Patient needs assistance for walking and attending own needs (4)	<input type="checkbox"/>
Patient is bedridden/incontinent and requires constant care (5)	<input type="checkbox"/>

16. Diagnostic procedure	Yes	No	Unknown	Imaging Date	
First CT brain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Time: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> am/pm
Imaging findings : .....					
MRI-brain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Time: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> am/pm
Imaging findings : .....					
CT-Angio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Time: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> am/pm
Imaging findings : .....					
MR-Angio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Time: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> am/pm
Imaging findings : .....					
CT-Perfusion / MR-Perfusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Time: <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/> am/pm
Imaging findings : .....					

Carotid ultrasound	<input type="checkbox"/>						
ECG	<input type="checkbox"/>						
Transthoracic echocardiogram (TTE)	<input type="checkbox"/>						
Transesophageal Echo, Holter	<input type="checkbox"/>						

Others, specify .....

17. CT/MRI imaging done at Reporting Institution :

Yes  No

Date

Time :  :  am/pm

Imaging findings : .....

17.1 Imaging time at Reporting Institution (*time of registration to imaging time at Reporting Institution*)

0-45 min  >45 min to 3 hours  >3 to ≤6 hours  > 6 hours to ≤ 24 hours  >24 hours

18. Basis of diagnosis (*Select all applicable*) :

Clinical  CT  MRI

Others, specify.....

19. Type of stroke :

Ischemic

Venous  Undetermined

20. TOAST CRITERIA (*for acute ischemic stroke*) :

Large-artery atherosclerosis

Cardioembolism

- i. Rheumatic Valvular
- ii. Non - Rheumatic Valvular
- iii. Non - valvular
- iv. CAD

Small-artery occlusion (*lacune*)

Stroke of other determined etiology

Stroke of undetermined etiology

- i. Patient extensively evaluated
- ii. Patient not evaluated
- iii. Patient with two competing etiologies

21.1 Type of Intracerebral haemorrhage :

Primary  Secondary

21.2 Type of Circulation of Stroke :

Anterior Circulation Stroke  Posterior Circulation Stroke

22. Final diagnosis :

First Ever  Recurrent

Final diagnosis (*in words*) .....

Type of stroke .....

Territory affected .....

Etiology .....

Risk Factor and co-morbidities .....

23. ICD-10 description :..... ICD -10 code:  .

### III. RISK FACTORS AND CO-MORBID CONDITIONS

#### 24. Underlying diseases or co-morbid conditions:

	Yes	No	Unknown	Duration (completed months)	Newly detected / OPD
Previous Stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Previous Transient Ischemic Attack (anytime in the past)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Hypertension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Diabetes Mellitus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Atrial Fibrillation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Carotid stenosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Myocardial Infarction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Ischemic Heart Disease (other than Atherosclerotic MI)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Valvular heart Disease					
1. Rheumatic Heart Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
2. Non Rheumatic Heart Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Valve Prosthesis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Heart Failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Peripheral Arterial Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Chronic Kidney Disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Anemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
Haemoglobin : <input type="text"/> g/dl or <input type="text"/> mmol/L					<input type="checkbox"/>
Hypercholesterolemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Hyper homocysteinemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>
Other:					
1.....					
2.....					
3.....					

#### 25. Other risks / conditions (current or history of):

	Yes	No	Unknown
Family History of Stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tobacco smoking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smokeless tobacco use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drug Abuse or Addiction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pregnancy or within 6 weeks after a delivery or termination of pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hormone replacement therapy / Hormonal drug use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Migraine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sickle Cell disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HIV infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CNS TB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Others, specify.....

None

Height ..... cm

Weight ..... kgs

BMI ..... Underweight  Normal  Overweight  Obese

**IV. TREATMENT DETAILS**

26. Treatment status before onset of stroke:	Yes	No	Unknown	Duration (in months)
Antiplatelets, specify .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Antihypertensive drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Lipid lowering drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Antidiabetic agents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Others.....				

26.1 Medications taken for this episode of stroke, prior to admission / presenting to OPD at the Reporting Institution:

Yes  No  Unknown

If 'Yes' in Q. 26.1. Answer Q. 26.2 to Q. 26.7 :

26.2 Antiplatelet	26.3 Anticoagulant	26.4 Thrombolytic treatment
Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Aspirin <input type="checkbox"/>	Heparin IV <input type="checkbox"/>	IV tPA <input type="checkbox"/>
Aspirin/dipyridamole <input type="checkbox"/>	Full dose LMW heparin <input type="checkbox"/>	IA tPA <input type="checkbox"/>
Clopidogrel <input type="checkbox"/>	Warfarin <input type="checkbox"/>	Mechanical Thrombectomy <input type="checkbox"/>
Others..... <input type="checkbox"/>	Newer Oral Anti-coagulant <input type="checkbox"/>	Others..... <input type="checkbox"/>
	Others..... <input type="checkbox"/>	

26.5 Antidiabetics	26.6 Anti Hypertensives	26.7 Lipid lowering agents /Statins
Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

27. Thrombolytic treatment at Reporting Institution

27.1 Was Thrombolytic treatment given? Yes  No

IV tPA  IA tPA  Mechanical thrombectomy

Others, specify..... Unknown

27.2 Time of initiating thrombolytic treatment after symptom onset

Date :   Time :  :  am/pm

27.3 Reasons for not receiving Thrombolysis	Yes	No	Unknown
Delay in arrival to hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delay in the imaging time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes mellitus with h/o previous ischemic stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Onset of symptoms unknown to decide on treatment initiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SBP > 185 or DBP > 110 mmHg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glucose < 50 or > 400 mg/dl	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stroke severity – NIHSS ≥ 22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suspicion of subarachnoid haemorrhage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CT findings of major infarct signs - > 50 % involvement of MCA territory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seizure at onset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recent surgery/trauma (≤14 days)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recent intracranial or spinal surgery, head trauma(<3 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
History of intracranial haemorrhage/brain aneurysm/vascular malformation/brain tumor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Active internal bleeding ( <i>within last 3 weeks</i> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Platelets <100,000/PTT > 40 sec after heparin use/ PT > 15 or INR > 1.7/known bleeding diathesis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Left heart thrombus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased risk of bleeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Severe comorbid diseases or condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stroke –rapidly improving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medicine not available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient could not afford medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others, specify.....			

27.4 CT done after 24 hours after Thrombolysis :      Yes       No       Unknown

27.5 Patient developed complications due to Thrombolysis:

None

Asymptomatic Intracerebral Haemorrhage (*ICH*) within 36 hours

Symptomatic ICH within 36 hours of thrombolysis

Life threatening, serious systemic haemorrhage within 36 hours of thrombolysis

Other serious complications.....

28. Other pharmacologic treatment

28.1 Name the medications received and time of initiation after stroke onset while in hospital :

	Yes	No	Unknown	If yes, when was it initiated after stroke onset?		
				Within 24 hrs.	24 - 48 hrs.	After 48 hrs.
Antiplatelets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, specify name.....						
Anticoagulants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antihypertensive drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lipid lowering drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antidiabetic agents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29. Surgical / interventional treatment

	Yes	No	Time of intervention after stroke onset
Hemicraniectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> ( <i>in hours</i> )
Suboccipital craniectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> ( <i>in hours</i> )
Hematoma evacuation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> ( <i>in hours</i> )
Carotid artery endarterectomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> ( <i>in days</i> )
Carotid stenting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> ( <i>in days</i> )
Endovascular coiling / clipping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> ( <i>in hours</i> )

Any other.....

30. Non- medical test / management :

30.1 Swallowing Test :

Has the ability to swallow been tested within 24 hours of admission to Reporting Institution ?

Yes       No       Not examined due to patient's state       Don't know

30.2 Did patient have dysphagia ? Yes  No

30.3 If patient had dysphagia, whether he/ she was put on nasogastric tube feeds? Yes  No

30.4 Did the patient receive any of the following therapies while in hospital?	Yes	No	Unknown	Explain
Swallowing management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Occupational therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Physiotherapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Speech therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Bladder care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Deep vein thrombosis prophylaxis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

31. Course during hospital stay

31.1 Did the patient deteriorate during hospitalisation ?

Developed new stroke event  Complications developed during hospitalisation  No

31.2 If option 1, what is the type of stroke?

Ischemic  Intracerebral haemorrhage  Subarachnoid Haemorrhage   
 Venous  Undetermined

31.3 Final diagnosis of new stroke event:

.....  
.....

31.4 ICD-10 description: ..... ICD -10 code: I .

31.5 Date of new stroke event:

31.6 If option 2, what are the complications during hospitalisation? Yes No Unknown

Intracerebral haemorrhage due to antithrombotic therapy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Progression of current stroke ( <i>in terms of expansion /extension of stroke</i> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cardiac event, specify.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seizures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pneumonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urinary Tract Infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Decubitus ulcer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deep Venous Thrombosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pulmonary Embolism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Renal Failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post stroke depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other psychiatric illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others, specify .....			

**V. DISCHARGE INFORMATION**

32. Date of discharge

33. How many days was the patient admitted in the hospital?

34. Vital status at discharge: Alive  Dead  Unknown

35. Functional Status at discharge (*modified Rankin scale at discharge*)

Symptoms	Score
Patient doesn't have any symptoms (0)	<input type="checkbox"/>
Patient is able to carry out all usual duties and activities without any assistance (1)	<input type="checkbox"/>
Patient can look after own affairs without assistance (2)	<input type="checkbox"/>
Patient requires some assistance in doing activities and can walk by himself or herself without any support (3)	<input type="checkbox"/>
Patient needs assistance for walking and attending own needs (4)	<input type="checkbox"/>
Patient is bedridden/incontinent and requires constant care (5)	<input type="checkbox"/>
Patient is dead (6)	<input type="checkbox"/>

36. Pharmacologic medication prescribed at OPD / at discharge	Yes	No	Unknown
Antihypertensives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antiplatelets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anticoagulants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Statins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antidiabetics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others .....			

37. Counselling regarding management at discharge	Yes	No	Unknown
Counselling for regular follow up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Counselling for compliance of medication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smoking cessation counselling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smokeless tobacco cessation counselling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Counselling to abstain alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Counselling to abstain from drug abuse & addiction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advice on rehabilitation services advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stroke education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**VI. FOLLOW UP**

**At day 28 after onset of stroke**

38.1 Due date of follow-up :

38.2 Actual date of follow-up :

38.3 Method of follow-up:

Hospital visit	<input type="checkbox"/>
By post	<input type="checkbox"/>
By telephone	<input type="checkbox"/>
By house visit	<input type="checkbox"/>
Others, specify.....	
Unknown	<input type="checkbox"/>

**At 3 months after onset of stroke**

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

38.3 Method of follow-up:

Hospital visit	<input type="checkbox"/>
By post	<input type="checkbox"/>
By telephone	<input type="checkbox"/>
By house visit	<input type="checkbox"/>
Others, specify.....	
Unknown	<input type="checkbox"/>

39. Vital status

Alive       Dead       Unknown

39.1 Any history of new stroke episode reported to other hospital?

40. Functional Status ( <i>modified Rankin scale</i> )	Yes	No
Symptoms	<input type="checkbox"/>	<input type="checkbox"/>
Patient doesn't have any symptoms (0)	<input type="checkbox"/>	<input type="checkbox"/>
Patient is able to carry out all usual duties and activities without any assistance (1)	<input type="checkbox"/>	<input type="checkbox"/>
Patient can look after own affairs without assistance (2)	<input type="checkbox"/>	<input type="checkbox"/>

Symptoms	Score
Patient doesn't have any symptoms (0)	<input type="checkbox"/>
Patient is able to carry out all usual duties and activities without any assistance (1)	<input type="checkbox"/>
Patient can look after own affairs without assistance (2)	<input type="checkbox"/>

Patient requires some assistance in doing activities and can walk by himself or herself without any support (3)

Patient needs assistance for walking and attending own needs (4)

Patient is bedridden/incontinent and requires constant care (5)

Patient is dead (6)

Patient requires some assistance in doing activities and can walk by himself or herself without any support (3)

Patient needs assistance for walking and attending own needs (4)

Patient is bedridden/incontinent and requires constant care (5)

Patient is dead (6)

**VII. DETAILS OF DEATH**

41. If dead, Date of death

42. Cause of Death information available :

Death Certificate (MCCD)

Medical Records

Verbal autopsy

Not available

Unknown

Death Certificate (MCCD)

Medical Records

Verbal autopsy

Not available

Unknown

43. Cause of death

Related to stroke

Not related to stroke

Others, specify.....

Unknown

Related to stroke

Not related to stroke

Others, specify.....

Unknown

43.1 Cause of death from MCCD

Immediate .....

Antecedent cause .....

Underlying cause .....

.....

Other contributing conditions .....

.....

Immediate .....

Antecedent cause .....

Underlying cause .....

.....

Other contributing conditions .....

.....

44. Matching death with PBSR record : (to be completed by PBSRs only)

Incidence Registration Number

45. Name of person completing the form : .....

46. Date of completion of form :

47. Date of data entry :

Signature : .....

\* Mark within boxes with "✓" as indicated