

རྒྱལ་ཡོངས་ནང་སྨན་ཀྱི་བའིལས་སྡེའི་བརྒྱ་སྐོར་གལ་ཆེའི།

User Guideline on Key Performance Indicators for the National Traditional Medicine Hospital

རྒྱལ་ཡོངས་ནང་སྨན་ལྷེ་བའི་ལས་སྡེའི་བརྡ་སྟོན་ལག་དེབ། སྤྱི་ཟླ་༡་ལ། ༢༠༢༦

User Guideline on Key Performance Indicators for the National Traditional Medicine Hospital, January 2026

Publisher
National Traditional Medicine Hospital
National Centre for Traditional Medicine Services
Ministry of Health, Thimphu
PO Box: 297 PABX: +975 2 338834

© National Traditional Medicine Hospital, National Centre for Traditional Medicine Services, Ministry of Health, Thimphu

All rights reserved
No part of this publication may be reproduced or transmitted in any form or by any means without prior permission from the Publisher.

Approval and validation
Quality Management Committee, National Traditional Medicine Hospital, National Centre for Traditional Medicine Services, Ministry of Health, Thimphu
December 2025.

Layout and design
Secretariat, QMC, NTMH, NCTMS, MoH, Thimphu.

For comments and feedback, kindly write to ntmh@nms.gov.bt

ISBN 978-99980-45-19-4

TABLE OF CONTENTS

Sl. No.	Topic	Page Number
1	Foreword	i
2	Abbreviations	ii
3	Acknowledgement	iii
4	Background	1
5	TM KPI-1 (BHSQA KPI-2): Time for Initial Assessment of Indoor Patients	2
6	TM KPI-2 (BHSQA KPI-3): Percentage of Cases (In-Patient) Wherein Care Plan with Desired Outcome is Documented and Countersigned by the Drungtsho	3
7	TM KPI-3 (BHSQA KPI-4): Percentage of Cases (In-Patient) Wherein Screening for Nutritional Needs Has Been Done	4
8	TM KPI-4 (BHSQA KPI-5): Percentage of Cases Wherein Nursing Care Plan is Documented	5
	TM KPI-5 (BHSQA KPI-16): Medication Error Rate (in-patient)	6
9	TM KPI-6 (BHSQA KPI-18): Percentage of Patients Who Developed Adverse Drug Reaction(s)	7
10	TM KPI -7 (BHSQA KPI-17): Percentage of Prescriptions (Including Medication Chart) with Error-Prone Abbreviations	8
11	TM KPI-8: Percentage of Patients Receiving High-risk Medications Who Develop an Adverse Drug Event	9
12	TM KPI-9 (BHSQA KPI-19): Medicine Reorder Levels in Medical Store	10
13	TM KPI-10 (BHSQA KPI-47): Percentage of Variations Observed in Mock Drills	11
14	TM KPI-11 (BHSQA KPI-46): Incidence of Falls	12
15	TM KPI-12 (BHSQA KPI-48): Incidence of Bedsore After Admission	13
16	TM KPI -13 (BHSQA KPI-49): Percentage of Staff Provided with Pre-Exposure Prophylaxis (Prep)	14
17	TM KPI-14 (BHSQA KPI-50): Average Length of Stay	15
18	TM KPI-15 (BHSQA KPI-51): Bed Occupancy Rate	16
19	TM KPI-16 (BHSQA KPI-53): Nurse-Patient Ratio for Wards	17
20	TM KPI-17 (BHSQA KPI-54): Outpatient Satisfaction Index	18
21	TM KPI-18 (BHSQA KPI-55): Inpatient Satisfaction Index	19

22	TM KPI-19 (BHSQA KPI-57): OPD Waiting Time	20
23	TM KPI-20 (BHSQA KPI-58): Employee Satisfaction Index	21
24	TM KPI-21 (BHSQA KPI-59): Employee Attrition Rate	22
25	TM KPI-22 (BHSQA KPI-60): Employee Absenteeism Rate	23
26	TM KPI-23 Percentage of Employees Who Are Aware of Employee Rights, Responsibilities and Welfare Schemes	24
27	TM KPI-24 (BHSQA KPI-62): Percentage of Sentinel Events Reported, Collected, and Analysed Within the Defined Time Frame	25
28	TM KPI 25 Percentage of Near Misses	26
29	TM KPI-26 (BHSQA KPI-61): Incidence of Blood and Body Fluid Exposures	27
30	TM KPI-27 (BHSQA KPI-63): Incidences of Needle Stick Injuries	28
31	TM KPI-28 (BHSQA KPI-64): Percentage of Medical Records Not Having a Discharge Summary or Incomplete	29
32	TM KPI-29 (BHSQA KPI-65): Percentage of Medical Records Not Having Codification as per the Bhutanese Traditional Medicine Classification of Diseases (BTMCD)	30
33	TM KPI-30 (BHSQA KPI-66): Percentage of Missing Medical Records	31
34	TM KPI-31 TM Nurse Handover Compliance	32
35	TM KPI-32 Drungtsho Handover Compliance	33
36	TM KPI-33 Rate of Patient Identification Errors	34
37	TM KPI-34 (BHSQA KPI-43): Hand Hygiene Knowledge and Practices	35
38	TM KPI-35 (BHSQA KPI-37): Compliance with Infection Control and Medical Waste Management	36
39	TM KPI-36 (BHSQA KPI-67): Follow-up of Referrals (in-country)	37
40	TM KPI-37 (BHSQA KPI-56): Patient discharged before 11 AM	38
41	TM KPI-38 (BHSQA KPI-45): 5S CQI Implementation	39
42	Annexure-1-NABH Recommended Sample Size	40
43	Annexure-2-Sample reporting Format	41
44	References	42-45

དཔལ་ལྡན་འབྲུག་གཞུང་།
གསོ་བ་སྨན་ཁག ཐིམ་ཕུ།
Royal Government of Bhutan
Ministry of Health, Thimphu
"A Nation with the Best Health"
SECRETARY

Foreword

It is with immense pride and anticipation that we present the 'User Guideline on Key Performance Indicators for the National Traditional Medicine Hospital.' This comprehensive guideline serves as a vital tool for measuring and improving the performance of our services, ensuring alignment with our mission to deliver exceptional traditional healthcare.

KPIs play an indispensable role in monitoring progress, identifying areas for improvement, and fostering continuous enhancement of services. This user guideline has been meticulously developed to establish a transparent and accountable framework that upholds the hospital's core values while prioritising patient satisfaction and quality care.

The creation of this guideline reflects the collective efforts, dedication and shared vision of all stakeholders involved. It symbolises our unwavering commitment to excellence and our determination to ensure that every aspect of our services meets the highest standards. We are confident that this guideline will serve as an invaluable resource in advancing the hospital's mission and vision.

We strongly encourage all departments, staff and collaborators to adopt the KPIs outlined in this guideline. By doing so, we can collectively achieve our organisational objectives, sustain a culture of continuous improvement and honour the rich heritage of traditional medicine.

We hope this user guideline proves both practical and inspiring, empowering you to track progress, contribute to the hospital's success and foster your professional development. Together, let us embark on this journey toward excellence and uphold the legacy of traditional medicine with pride and integrity.

(Pemba Wangchuk)
Secretary

29th December 2025
Thimphu

LIST OF ABBREVIATIONS AND ACRONYMS

ADMO	Administrative Officer
BHSQA	Bhutan Healthcare Standards for Quality Assurance
BTMCD	Bhutanese Traditional Medicine Classification of Diseases
BTMS	Bhutanses Traduitional Medicine Services
CA	Clinical Audit
CQI	Continuous Quality Improvement
DAMA	Discharge Against Medical Advice
DHIS2	District Health Information Software 2
ePIS	Electronic Patient Information System
FTE	Full-Time Equivalent
GA	General Audit
HCC	Healthcare Centre
HSQAD	Health Service Quality Assurance Division
IC	In-Charge
ICMWM	Infection Control and Medical Waste Management
IPC	Infection Prevention and Control
ICD	International Classification of Diseases
ISBAR	Identification, Situation, Background, Assessment and Recommendation
KPIs	Key Performance Indicators
MRU	Medical Record Unit
NCTMS	National Centre for Traditional Medicine Services
NTMH	National Traditional Medicine Hospital
OPD	Outpatient Department
PrEP	Pre-exposure Prophylaxis
PSQ	Patient Satisfaction Questionnaire
QFP	Quality Focal Person
QA	Quality Assurance
RCSC	Royal Civil Service Commission
TM	Traditional Medicine
TMS	Traditional Medicine System
13FYP	13th Five-Year Plan
5S	Sort, Set, Shine, Standardise, Sustain

ACKNOWLEDGMENT

With deep humility and heartfelt appreciation, we extend our sincere gratitude to everyone whose dedication, wisdom and selfless service made the development of the 'User Guideline on Key Performance Indicators' for the National Traditional Medicine Hospital possible. This work is not merely a document, but a collective expression of commitment, care and responsibility toward preserving and strengthening the noble tradition of gSowa Rigpa for the well-being of our people.

We offer our profound thanks to the hospital management team for their unwavering guidance, encouragement and trust throughout this journey. Their leadership provided the strength and direction needed to transform a shared vision into reality.

Our deepest appreciation goes to the Drungtshos, sMenpas and staff of the National Traditional Medicine Hospital and district hospitals, whose tireless efforts, lived experience and heartfelt dedication shaped this guideline. Their daily service, rooted in compassion and healing, continues to inspire and give true meaning to this endeavour.

We extend special and heartfelt recognition to Mr. Kuenzang Dorji, Program Officer of HSQAD, MoH, Ms. Tshering Cheki, Officiating Chief Program Officer, QAD of JDWNRH and Ms. Tshetrim Dema, Program Officer, QAD, JDWNRH, for their invaluable technical expertise, patience and guidance. Their thoughtful contributions ensured that this guideline bridges tradition and modernity with care, precision, and respect.

We also sincerely acknowledge all the stakeholders whose steadfast commitment and quiet perseverance upheld the spirit of excellence throughout the process. Their devotion to duty and service reflects a deep sense of responsibility toward patients, the institution, and the sacred practice of gSowa Rigpa.

Finally, we express our deepest gratitude for the meaningful integration of Key Performance Indicators into gSowa Rigpa practice. This initiative symbolises a harmonious union of ancient wisdom and contemporary healthcare standards, ensuring that compassion is guided by accountability and tradition is strengthened through continuous improvement. Through this collective effort, we honour the past, serve the present, and safeguard the future of Bhutanese Traditional Medicine for generations to come.

Background

Bhutanese Traditional Medicine constitutes an integral component of the national healthcare system. It is provided as a state-funded service in accordance with the Constitution of the Kingdom of Bhutan. Delivered through the country's three-tier healthcare structure, TMS complement allopathic healthcare by offering holistic, patient-centred approaches that emphasise balance, prevention and the integration of physical, mental, social and spiritual well-being. These services encompass clinical consultations, therapeutic interventions, and the provision of traditional medicines, ensuring accessibility and continuity of care across the country.

The National Traditional Medicine Hospital in Thimphu functions as the apex hospital for TMS, serving as a centre of excellence for clinical service delivery, training, research and referral. The hospital provides both inpatient and outpatient services, including a wide range of invasive and non-invasive therapies that adhere to traditional principles while responding to contemporary healthcare needs. In recent years, NTMH has demonstrated notable improvements in the quality and safety of service delivery through the systematic adoption of national and international standards, reflecting Bhutan's commitment to strengthening governance, patient safety, and service effectiveness within TM.

The Health Service Quality Assurance Division of the Ministry of Health has been instrumental in cultivating a culture of quality and accountability within BTMS. Through the provision of human resource development initiatives, financial investments and technical guidance, HSQAD has supported the integration of quality improvement principles across service delivery points.

Despite these advances, persistent challenges remain in relation to performance measurement and monitoring. Existing KPIs and monitoring frameworks, largely adapted from the Bhutan Health Service Quality Assurance standards, do not sufficiently capture the distinct characteristics, processes and outcomes inherent to TM practice. As a result, systematic documentation, performance evaluation and service standardisation have been constrained, limiting the ability to generate evidence for continuous quality improvement and informed decision-making.

In response to these gaps, the User Guideline on Key Performance Indicators for NTMH has been developed. This guideline provides a structured set of KPIs specifically tailored to the context of BTMS, enabling more accurate measurement of service performance while aligning with contemporary healthcare quality standards. The guideline is intended not only to support NTMH in achieving its service delivery targets but also to serve as a reference for TM Units nationwide by promoting shared learning, consistency, and the dissemination of best practices.

The integration of these tailored KPIs into the practice of gSowa Rigpa represents a significant step toward harmonising Traditional Medical wisdom with modern quality assurance frameworks. By strengthening accountability, enhancing transparency, and fostering a culture of continuous improvement, the guideline contributes to the sustained advancement of Bhutanese Traditional Medicine services and their role within the national health system.

TM KPI-1 (BHSQA KPI-2): Time for Initial Assessment of Indoor Patients	
Elements	Details
Definition	The time begins when the patient arrives at the designated bed in the ward and ends when the assessment is completed by the Drungtsho.
Formula	$\frac{\text{Total time taken for the initial assessment of inpatients in a month}}{\text{Total number of in-patients sampled in that month}} X100$
Unit	Minutes
Target	≤45 minutes
Sample Size	For HCCs with < 20 patients/day:100% For HCCs with ≥ 20 patients/day: 1st 570 patients
Area of Data Collection	Inpatient department
Frequency of Data Collection	Monthly
Concerned official	The IPD in-charge shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	ePIS/Register/Google Sheet maintained in Wards
Remarks	The average time should be reviewed by the HCC to see if this has impacted clinical care and outcomes. The outlier: those taking more than 20% of the average time shall be audited. The HCC shall make an effort to keep this measure at low levels. Outdoor patients shall not be included.
References	Bhati, 2021; NABH, 2015; Ahmad, Khairatul and Farnaza, 2017.

Sample calculation:
The total number of in-patients in a month: 5 (< 20 patients' admission per day)

Total time taken for initial assessment of 5 in-patients after arriving at the ward bed: 50 minutes (10 min for 1st patient, 15 minutes for 2nd patient, 8 minutes for 3rd patient, etc.)

$$Time\ taken\ for\ initial\ assessment\ of\ in\text{-}patient:$$

$$\frac{\mathbf{50}}{\mathbf{5}} \times \mathbf{100} = \mathbf{10.00}\ \boldsymbol{Minutes}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-2 (BHSQA KPI-3): Percentage of Cases (In-Patient) Wherein Care Plan with Desired Outcome is Documented and Countersigned by the Drungtsho	
Elements	**Details**
Definition	The focus of a care plan is to facilitate standardised, evidence-based and holistic care. It includes the following components: assessment, diagnosis, interventions and evaluation. The desired outcome includes curative, preventive and rehabilitative.
Formula	$\frac{\text{Number of inpatient cases wherein the care plan with the desired outcome documented in 6 months}}{\text{Total number of inpatients sampled in those months}} \times 100$
Unit	Percentage
Target	>90%*
Sample Size	For HCCs with < 20 patients/day:100% For HCCs with ≥ 20 patients/day: 1st 570 patients
Area of Data Collection	Inpatient department
Frequency of Data Collection	Monthly
Concerned official	The IPD in-charge shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	ePIS/Patient history sheet
Remarks	The indicator shall be captured during the stay of the patient and not from the medical record department. The sampling base shall be patients who have completed 24 hours of stay in the hospital. Data capturing is done every month, while reporting is done on a 6-month basis.
References	Bhati, 2021; NABH, 2015; Ahmad, Khairatul and Farnaza, 2017

Sample calculation:

Total number of inpatients in 6 months: 5 (< 20 admissions per day)

The total number of inpatient cases wherein the care plan with the desired outcome is documented in those months: 3

$$Percentage\ of\ cases\ (inpatient)\ wherein\ the\ care\ plan\ with\ the\ desired\ outcome\ is\ documented\ and\ countersigned:$$

$$\frac{3}{5} \times 100 = 60.00\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-3 (BHSQA KPI-4): Percentage of Cases (In-Patient) Wherein Screening for Nutritional Needs Has Been Done	
Elements	**Details**
Definition	The patient's nutritional needs (in the context of TM) should be assessed at the initial meeting. The best practice is to do this screening as part of a patient's admission or first assessment and to complete it within the first 24 hours after arriving in a care setting.
Formula	$\frac{\text{Number of inpatient cases in a months screened for nutritional need}}{\text{Total number of inpatients in that month}} \times 100$
Unit	Percentage
Target	>90%*
Sample Size	For HCCs with < 20 patients/day:100% For HCCs with ≥ 20 patients/day: 1st 570 patients
Area of Data Collection	Inpatient department
Frequency of Data Collection	Monthly
Concerned official	The IPD in-charge shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Nutritional Assessment Form in the Nursing Assessment Form (ePIS).
Remarks	The indicator shall be captured during the stay of the patient and not from the medical record department. The sampling base shall be patients who have completed 24 hours of stay in the hospital. However, immediate correction is to be initiated when gaps are seen on a real-time basis.
References	NABH, 2015

Sample calculation:

Total number of in-patients in that month: 10 (< 20 admissions per day)

The total number of in-patient cases screened for nutritional need in 6 months: 3

$$Percentage\ of\ cases\ (inpatient)\ wherein\ screening\ for\ nutritional\ needs\ have\ been\ done:$$

$$\frac{\mathbf{3}}{\mathbf{10}} \times \mathbf{100} = \mathbf{30.00}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-4 (BHSQA KPI-5): Percentage of Cases Wherein Nursing Care Plan is Documented	
Elements	**Details**
Definition	Nursing care plans shall be formulated based on the nursing assessment performed at the time of admission.
Formula	$\frac{\text{Number of inpatient cases in a month wherein nursing care plan is documented}}{\text{Total number of inpatients sampled in that month}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	For HCCs with < 20 patients/day:100% For HCCs with ≥ 20 patients/day: 1st 570 patients
Area of Data Collection	Inpatient department.
Frequency of Data Collection	Monthly
Concerned official	The IPD in-charge shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Nursing Care Plan (ePIS/Nursing Care Plan form).
Remarks	The indicator shall be captured during the stay of the patients and not from the medical record department. The sample shall be patients who have completed 24 hours of stay.
References	NABH, 2015.

Sample calculation:

The total number of in-patient cases wherein the nursing care plan is documented in a month: 400

Total number of in-patients sampled from that month: 1st 570 patients (total admission 4000, i.e ≥ 20 patients/day)

$$Percentage\ of\ cases\ (inpatient)\ wherein\ the\ nursing\ care\ plan\ is\ documented:$$

$$\frac{\mathbf{400}}{\mathbf{570}} \times \mathbf{100} = \mathbf{70.18\%}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-5 (BHSQA KPI-16): Medication Error Rate (In-patient)	
Elements	**Details**
Definition	A medication error is any preventable event that may cause or lead to inappropriate medication use or harm to a patient.
Formula	$\frac{\text{The total number of in-patient medication errors observed in a month}}{\text{Total number of inpatient days in that month}} \text{X1000}$
Unit	Per 1000 patient days
Target	0 per 1000 patient days
Sample Size	100%
Area of Data Collection	Inpatient department.
Frequency of Data Collection	Monthly
Concerned official	The IPD in-charge shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Incident report/ soft copy
Remarks	The methodology to capture medication errors is per the NABH recommendation. If possible, medication errors can be divided into administration errors, dispensing errors, dose errors, etc.
References	Bhati, 2021; Bakar, Rahman and Nujid, 2013; NABH, 2015; Anand R, Krishnankutty, Ramakrishnan and VC, 2018.

Sample calculation:

The total number of in-patient medication errors observed in the month:3 (e.g., wrong drugs prescribed for 1 patient, wrong medicine dispensed to 1 patient, wrong dose prescribed to one patient due to negligence).

The total number of in-patients days: 500

$Medication\ error\ rate\ (in\text{-}patient)$:$Medication\ error\ rate\ (in\text{-}patient)$:

$$\frac{\mathbf{3}}{\mathbf{500}} \times \mathbf{1000} = \mathbf{6.00}\ \boldsymbol{per}\ \mathbf{1000}\ \boldsymbol{in - patient\ days}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-6 (BHSQA KPI-18): Percentage of Patients Who Developed Adverse Drug Reaction(s)	
Elements	**Details**
Definition	A response to a drug which is noxious and unintended, and which occurs at doses normally used in patients for prophylaxis, diagnosis, or therapy of disease or the modification of physiologic function.
Formula	$\frac{\text{Number of cases who developed adverse drug reaction (s) in a month}}{\text{Total number of patients in that month}} \times 100$
Unit	Percentage
Target	<5%
Sample Size	Not applicable
Area of Data Collection	Inpatient and Outpatient Department
Frequency of Data Collection	Monthly
Concerned official	Pharmacy in-charge / relevant officials shall submit the report to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Adverse Drug Reaction (ADR) report
Remarks	Adverse drug reactions and medication errors shall not overlap. Discharges include DAMA and abscond. To report all ADR irrespective of severity/degree.
References	Bhati, 2021; NABH, 2015; WHO, 2021; Bouvy, De Bruin and Koopmanschap, 2015

Sample Calculation:

The total number of adverse drug reactions encountered in a month: 3

The total number of inpatients in that month: 16

$$Percentage\ of\ inpatients\ who\ developed\ adverse\ drug\ reaction\ (s): \frac{\mathbf{3}}{\mathbf{16}} \times \mathbf{100} = \mathbf{18.75}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI -7 (BHSQA KPI-17): Percentage of Prescriptions (Including Medication Chart) with Error-Prone Abbreviations	
Elements	**Details**
Definition	The use of abbreviations on the prescription, including medication chart, which are not listed in the pre-defined acceptable abbreviation list.
Formula	$\frac{Number\ of\ medication\ charts\ with\ error-prone\ abbreviations\ in\ a\ month}{Number\ of\ medication\ charts\ reviewed\ in\ that\ month} X100$
Unit	Percentage
Target	<8.4%
Sample Size	Refer sample size table
Area of Data Collection	IPD & OPD pharmacy
Frequency of Data Collection	Monthly
Concerned official	IPD and OPD in-charges shall submit the report or data to the QFP per the pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data source	Drug chart/prescription/ePIS
Remarks	Error-prone abbreviations shall be defined by the healthcare centres in consonance with the guidelines laid by the institution for safe medication practices. This activity can be clubbed with capturing medication errors.
References	NABH, 2015; Ball, 2014

Sample calculation:

The total number of medication charts in a month: 100

Total number of medication charts sampled for review: 79 (NABH recommended sample size)

The total number of medication charts with one or more error-prone abbreviations: 10 (e.g., µg, AD, AS, AU, OD, OS, OU, SC, SQ, sub q)

$Percentage\ of\ medication\ charts\ with\ error\text{-}prone\ abbreviations$:

$$\frac{\mathbf{10}}{\mathbf{79}} \times \mathbf{100} = \mathbf{12.66}\%$$

TM KPI-8: Percentage of Patients Receiving High-risk Medications Who Develop an Adverse Drug Event	
Elements	**Details**
Definition	High-risk medications are medications involved in a high percentage of medication errors or sentinel events and medications that carry high risk for abuse, error, or other adverse outcomes.
Formula	$\frac{\text{No. of patients receiving high risk medications who have an adverse drug event}}{\text{Number of patients receiving high risk medications}}$
Unit	Percentage
Target	<2%
Sample Size	Not applicable
Area of Data Collection	Inpatient and Outpatient Department
Frequency of Data Collection	Monthly
Concerned official	In charge of concerned department shall submit the report or data to the QFP per the pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Adverse drug reaction incidence record Record of total patients
Remarks	The denominator can be obtained from the pharmacy by having a master list of in-patients/outpatients who have been dispensed high-risk medications. For high-risk medicine in TM, please refer to the standard list.
References	Bhati,2021; NABH,2015; WHO.2021; Bouy, De Bruin and Koopmanschap 2015

Sample Calculation:

The total number of adverse drug events among patients receiving high-risk medication in a month: 6

Total number of patients receiving high-risk medication in a month: 20

Percentage patient developing adverse drug event from high-risk medications:

$$\frac{\mathbf{6}}{\mathbf{20}}\mathbf{x100} = \mathbf{30.00}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-9 (BHSQA KPI-19): Medicine Reorder Levels in Medical Store	
Elements	**Details**
Definition	List of applicable medicines (vital and essential) where stocks are below an agreed minimum reorder level in the healthcare centre. The minimum reorder level of drugs refers to the quantity that should be sufficient for three months, calculated based on the average consumption over the previous three months.
Formula	$\frac{\text{Number of V and E medicine that are below the agreed minimum level in a month}}{\text{Total number of V and E medicine that shall be available in the healthcare centre}} \text{X}100$
Unit	Percentage
Target	0%
Sample Size	Not applicable
Area of Data Collection	Medical store or pharmacy
Frequency of Data Collection	Monthly
Concerned official	The medical store or pharmacy in charge shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data source	eBMSIS/Medical store stock ledger or inventory/ePIS
Remarks	The vital, essential, and necessary medicines, as well as the quantity required, shall be per the latest national essential medicine list and other related guidelines.
References	NABH, 2015

Sample calculation:

The total number of vital (V) and essential (E) medicines in the national essential medicine list: 325

The total number (types) of V and E medicine that shall be available in the HCC: 200 (e.g., Halothane inhalation (250mL), Sevoflurane inhalation (250mL), etc.).

The total number of V and E medicines below the agreed minimum level in a month: 1 (e.g., Halothane inhalation (250mL) is below the agreed level).

Percentage of medicine where stocks are below an agreed minimum reorder level:

$$\frac{\mathbf{1}}{\mathbf{200}} \times \mathbf{100} = \mathbf{0.50\%}$$

Calculation using NABH recommended sample size: Not applicable

TM KPI-10 (BHSQA KPI-47): Percentage of Variations Observed in Mock Drills	
Elements	**Details**
Definition	A mock drill is a preparation exercise for any type of event (e.g., fire mock drill, disaster drill, etc.).
Formula	$\frac{\text{Number of variations observed in mock drills}}{\text{The total number of observations made}} \text{X}100$
Unit	Percentage
Target	-
Sample Size	Not applicable
Area of Data Collection	All units and departments (both clinical and non-clinical) of the HCC.
Frequency of Data Collection	Annually
Concerned official	The QFP, in collaboration with HCC management, shall initiate or organise a mock drill.
Data Source	Mock drill observation report
Remarks	The percentage of variation should be calculated separately for each mock drill. The HHCC shall develop or adopt a standard checklist for mock drill assessment.
References	NABH,2015

Sample Calculation:

Total number of observations made during the fire mock drill: 40 observations

The total number of variations observed during the fire mock drill: 5 (e.g., staff gathering out of HCC randomly during the mock drill).

Percentage of variations observed in mock drills:

$$\frac{\mathbf{5}}{\mathbf{40}}\mathbf{x100} = \mathbf{12.50}\%$$

Calculating using NABH recommended sample size: Not applicable.

TM KPI-11 (BHSQA KPI-46): Incidence of Falls	
Elements	**Details**
Definition	Loss of upright position that results in landing on the floor, ground or an object or furniture or a sudden, uncontrolled, unintentional, non-purposeful, downward displacement of the body to the floor/ground or hitting another object like a chair or stairs. It is an event that results in a person coming to rest inadvertently on the ground or floor or other lower level.
Formula	$\frac{\text{Number of falls in IPD in a month}}{\text{Number of patients days in that month}} \text{X1000}$
Unit	Fall per 1000 patient days
Target	At least a 10% reduction in each year, based on the previous year's data as the baseline
Sample Size	Not applicable
Area of Data Collection	IPD and OPD
Frequency of Data Collection	Monthly
Concerned official	In-charges of the IPD and OPD shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Incident report
Remarks	The patient's fall must be defined. In general, any type of fall (fall from bed, in the bathroom, on the stairs, while walking, etc.) must be counted.
References	Bhati, 2021; Bakar, Rahman and Nujid, 2013; NABH, 2015

Sample calculation:

Total number of patient falls encountered in a month: 2 (1 patient fell off the bed in the ward and another on the staircase)

Total number of patient days in a month: 71 (1st patient stayed in the hospital for 7 days, the second patient stayed in the hospital for 4 days, and 3rd patient stayed in the hospital for 30 days)

$$Incidences\ of\ patient\ fall:$$

$$\frac{\mathbf{2}}{\mathbf{71}} \times \mathbf{1000} = \mathbf{28.16}\ \boldsymbol{patients\ fall\ per}\ \mathbf{1000}\ \boldsymbol{patient\ day}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-12 (BHSQA KPI-48): Incidence of Bedsore After Admission	
Elements	**Details**
Definition	A pressure ulcer is a localised injury to the skin and/orunderlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction.
Formula	$\frac{\text{Number of patients who developed new or worsening pressure ulcer in a month}}{\text{Number of bedridden patients days in that month}} \text{X1000}$
Unit	Per 1000 patient days
Target	< 0.54 Per 1000 patient days
Sample Size	Not applicable
Area of Data Collection	Inpatient departments
Frequency of Data Collection	Monthly
Concerned official	In-charges of the IPD shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data source	ePIS/Incident report
Remarks	HCC shall use the particular grading system. This will help in capturing a worsening ulcer, which is included in the numerator. This indicator is applicable to both new and old cases.
References	Bhati, 2021; Bakar, Rahman and Nujid, 2013; NABH, 2015; RIB Software, 2024; Young and Dobrzanski, 1992; Kirman, 2021; Al-Hashemi, 2019; Li etal., 2020

Sample calculation:

Total number of patients who developed new or worsening pressure ulcers in a month: 1

Total number of bedridden patient days in a month: 75 (1st patient stayed in the hospital for 20 days, the second patient stayed in the hospital for 30 days, and 3rd patient stayed in the hospital for 25 days)

$$Incidence\ of\ bedsore\ after\ admission:$$

$$\frac{\mathbf{1}}{\mathbf{75}} \times \mathbf{1000} = \mathbf{13.30}\ \boldsymbol{incidence\ per}\ \mathbf{1000}\ \boldsymbol{patient\ days}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI -13 (BHSQA KPI-49): Percentage of Staff Provided with Pre-Exposure Prophylaxis (Prep)	
Elements	**Details**
Definition	The use of medications to prevent disease transmission in people who have not yet been exposed to a disease-causing agent, usually a virus.
Formula	$\frac{\text{Number of employees who were provided with PrEP}}{\text{Total number of employees}} \text{X100}$
Unit	Percentage
Target	100%*
Sample Size	Not applicable
Area of Data Collection	Administration and IPC Focal
Frequency of Data Collection	Annually
Concerned official	HR officer or ADM shall submit the report or data to the QFP per pre-defined frequency.
Data Source	HR personnel file
Remarks	This includes PrEP recommended by the Ministry of Health or any other relevant agencies. Staff's pre-exposure prophylaxis status must be documented.
References	NABH, 2015

Sample calculation:
Total number of staff: 100

The total number of staff who have received appropriate PrEP: 80

$$Percentage\ of\ staff\ provided\ with\ Pre\text{-}exposure\ prophylaxis: \frac{\mathbf{80}}{\mathbf{100}} \times \mathbf{100} = \mathbf{80.00\%}$$

Calculation using NABH recommended sample size: Not applicable

TM KPI-14 (BHSQA KPI-50): Average Length of Stay	
Elements	**Details**
Definition	Length of Stay (LOS) refers to the duration of a single hospitalisation episode. It is determined by subtracting the admission day from the discharge day. However, if a patient is both admitted and discharged on the same day, the length of stay is recorded as one day.
Formula	$\frac{\text{Total number of "inpatient days" in a month}}{\text{Total number of patients whose length of stay has been taken during that month}}$
Unit	Days
Target	≤6 days
Sample Size	Refer sample size table (if ePIS is available, 100% of the patients shall be used for this KPI).
Area of Data Collection	Inpatient Department/Medical Record Unit
Frequency of Data Collection	Monthly
Concerned official	IPD or Record Unit in-charges shall submit the report or data to the QFP per the pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	ePIS/Admission Register
Remarks	Patients with chronic conditions or those receiving palliative care who are bedridden for extended periods shall not be included for this purpose. Patients who are admitted and discharged or die on the same day have a one-day length of stay.
References	Bhati, 2021; Ioan, Nestian and Tiţă, 2012; NABH, 2015; Khalifa and Khalid, 2015; Anand R, Krishnankutty, Ramakrishnan and VC, 2018; Organisation for Economic Co-operation and Development, 2021

Sample calculation:

Total number of inpatients in a month: 3

Total number of in-patients days in that month: 75 (1st patient stayed in the hospital for 20 days, the second patient stayed in the hospital for 30 days and 3rd patient stayed in the hospital for 25 days)

$$Average\ length\ of\ stay\ (ALOS):$$

$$\frac{\mathbf{75}}{\mathbf{3}} = \mathbf{25}\ \boldsymbol{days}$$

Calculation using NABH recommended sample size: If the total number of patients is less than 50, use all the patients for the calculation. If more than 50, calculate using NABH recommended sample size as shown in other examples.

TM KPI-15 (BHSQA KPI-51): Bed Occupancy Rate	
Elements	**Details**
Definition	The percentage of actual beds occupied by inpatients in a given period.
Formula	$\frac{\text{Total inpatient days in a month}}{\text{Number of available bed days in that month}} \text{X}100$
Unit	Percentage
Target	70-80%
Sample Size	Not applicable
Area of Data Collection	Inpatient departments or Medical Record Unit
Frequency of Data Collection	Monthly
Concerned official	IPD or Record Unit in-charges shall submit the report or data to the QFP per the pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data source	ePIS/ Medical record/ Indoor patient census
Remarks	A bed must be set up, staffed, equipped, and available for patient care to be counted in the official count. Patients who are admitted and discharged or die on the same day have a one-day length of stay.
References	NABH, 2015; Organisation for Economic Co-operation and Development, 2019; Madsen, Ladelund and Linneberg, 2014

Sample calculation:
Total number of in-patients days in a month: 75 (refer to previous examples for calculating inpatient days)

Total number of available bed days in that month: 300 (10 [no of available beds] x 30 days in a month)

$$Bed\ occupancy\ rate: \frac{\mathbf{75}}{\mathbf{300}} \times \mathbf{100} = \mathbf{25}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-16 (BHSQA KPI-53): Nurse-Patient Ratio for Wards	
Elements	**Details**
Definition	The ratio of sMenpa/ TM-Nurse in a particular ward to the number of patients.
Formula	$\frac{\text{Total number of a nurse working}}{\text{Total number of occupied beds}}$
Unit	Ratio
Target	As per the RCSC standard
Sample Size	Not applicable
Area of Data Collection	Inpatient department
Frequency of Data Collection	Biannual
Concerned official	IPD in-charges shall submit the report or data to the QFP per the pre-defined frequency. The concerned HoD must ensure that this report is submitted.
Data Source	Nurses' duty roster/ePIS/ Indoor patient census
Remarks	If the number of beds is used in the denominator, the bed shall be occupied. In-charge shall not be included in the total number of employees unless he or she performs equal duties as other employees.
References	NABH, 2015; Rib Software, 2024

Sample calculation:

Total number of nursing staff working in the ward: 10 (excluding Nursing In-charge)

Total number of beds occupied:90

$$Nurse \text{ to } patient\ ratio\ for\ ICUs: \frac{\mathbf{10}}{\mathbf{90}} = \mathbf{1:9}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-17 (BHSQA KPI-54): Outpatient Satisfaction Index	
Elements	**Details**
Definition	Patient Satisfaction is defined as the extent to which the patient's expectations are met.
Formula	$\frac{\text{Score achieved}}{\text{Maximum possible score}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	For HCCs with < 20 patients/day: 100% For HCCs with 21-50 patients/day: 50% For HCCs with 51-100 patients/day: 20% For HCCs with 101-200 patients/day: 10% For HCCs with 201-400 patients/day: 2% The selection of patients shall be stratified in all applicable scenarios to enable a comprehensive overview.
Area of Data Collection	Outpatient departments
Frequency of Data Collection	Annually, over two months period
Concerned official	General auditing must be organised or initiated by the HCC's QFP in collaboration with the management.
Data Source	Patient satisfaction survey report
Remarks	This should be captured by conducting general audits using a patient satisfaction survey checklist.
References	Bhati, 2021; Ioan, Nestian and Tiţă, 2012; NABH, 2015; Khalifa and Khalid, 2015; RIB Software, 2024; Anand R, Krishnankutty, Ramakrishnan and VC, 2018

Sample calculation:

Total maximum possible score (for 1 patient): 72 (4 [max score for individual standard] x 18 standards)

The total score achieved: 70

$$Outpatient\ satisfaction\ index: \frac{\mathbf{70}}{\mathbf{72}} \times \mathbf{100} = \mathbf{97.20}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-18 (BHSQA KPI-55): Inpatient Satisfaction Index	
Elements	**Details**
Definition	Patient Satisfaction is defined as the extent to which the patient's expectations are met.
Formula	$\frac{\text{Score achieved}}{\text{Maximum possible score}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	For HCCs with < 20 discharges/day: 100% For HCCs with 21-50 discharges/day: 50% For HCCs with 51-100 discharges/day: 20% For HCCs with >100 discharges/day: 10% The selection of patients shall be stratified in all applicable scenarios to enable a comprehensive overview.
Area of Data Collection	Inpatient departments
Frequency of Data Collection	Biannually
Concerned official	General auditing must be organised or initiated by the HCC's QFP in collaboration with the management.
Data Source	Patient satisfaction survey checklist/Google Forms/any forms
Remarks	This should be captured by conducting general audits using a patient satisfaction survey checklist. Data shall be collected monthly and reported annually.
References	Bhati, 2021; Ioan, Nestian and Tiţă, 2012; NABH, 2015; Khalifa and Khalid, 2015

Sample calculation:
Total maximum possible score (for 1 patient): 72 (4 [max score for individual standard] x 18 standards)

The total score achieved: 70

$$Inpatient\ satisfaction\ index: \frac{\mathbf{70}}{\mathbf{72}} \times \mathbf{100} = \mathbf{97.20}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-19 (BHSQA KPI-57): OPD Waiting Time (consultation)	
Elements	**Details**
Definition	Time spent by a patient from the reception desk to the examination by a health professional in the chamber.
Formula	$\frac{\text{Total OPD waiting time (minute) in 6 month}}{\text{Total number of OPD patients in that months}}$
Unit	Minutes
Target	<45 minutes
Sample Size	Refer sample size table (if ePIS is available, 100% of the patients shall be used for this KPI).
Area of Data Collection	Outpatient department
Frequency of Data Collection	Biannually
Concerned official	Concerned in-charges shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	ePIS/OPD waiting report /soft copy
Remarks	Collect data on every 1st week of the month and report biannually.
References	Bhati, 2021; Ioan, Nestian and Tiţă, 2012; Parmenter, 2015; RIB software, 2024; Anand R, Krishnankutty, Ramakrishnan and VC, 2018; Ahmad, Khairatul and Farnaza, 2017

Sample calculation:
Total OPD waiting time in 6 months: 200

The total number of out-patients in those months: 45

$$OPD\ waiting\ time: \frac{\mathbf{200}}{\mathbf{45}} = \mathbf{4.40}\ \boldsymbol{minutes}$$

Calculation using NABH recommended sample size: If the total number of patients is less than 50, use all the patients for calculation. If more than 50, calculate using NABH recommended sample size as shown in other examples.

TM KPI-20 (BHSQA KPI-58): Employee Satisfaction Index	
Elements	**Details**
Definition	Employee satisfaction is an index to measure the satisfaction of employees in the HCC.
Formula	$\frac{\text{Score achieved}}{\text{Maximum possible score}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	For HCCs with < 100: 100% For HCCs with 101-200 staff: 50% For HCCs with 501-1000: 15% For HCCs with >1000 staff: 10%
Area of Data Collection	All the departments and units (both clinical, supportive and administrative services)
Frequency of Data Collection	Annually
Concerned official	The survey must be organised or initiated by the HCC's QFP in collaboration with the management.
Data Source	Employee satisfaction survey report.
Remarks	The satisfaction shall be captured from all categories of staff.
References	NABH, 2015; Parmenter, 2015

Sample calculation:
Total score achieved: 200 (100 from employee 1, 45 from employee 2 and 55 from employee 3)

Total maximum possible score: 720 (4 [max score for individual standard] x 18 standards X 10 [no of staff])

$$Employee\ satisfaction\ index: \frac{\mathbf{200}}{\mathbf{720}} \times \mathbf{100} = \mathbf{27.7\%}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-21 (BHSQA KPI-59): Employee Attrition Rate	
Elements	**Details**
Definition	The attrition rate is the percentage of people leaving the HCC.
Formula	$\frac{\text{Number of employees who have left the HCC in 12 months}}{\text{The number of employees at the beginning of the year + newly joined}} \text{X100}$
Unit	Percentage
Target	<10%
Sample Size	100%
Area of Data Collection	HR division /Administrative office.
Frequency of Data Collection	Annually
Concerned official	HR officer or hospital ADM shall submit the report or data to the QFP per pre-defined frequency.
Data Source	HR records are maintained in the administrative office.
Remarks	Employee superannuating, transferred to another HCC through administrative action and death shall not be used in the numerator.
References	Ioan, Nestian and Tiţă, 2012; NABH, 2015; turnover and retention research report, 2021

Sample Calculation:

Total number of staff who left the HCC in 12 months: 5

Total number of staff at the beginning of the year + newly joined: 200

$$Employee\ attrition\ rate:$$

$$\frac{\mathbf{5}}{\mathbf{200}} \times \mathbf{100} = \mathbf{2.50\%}$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-22 (BHSQA KPI-60): Employee Absenteeism Rate	
Elements	**Details**
Definition	Absenteeism is defined as failing to appear at work during a regularly scheduled work period without prior approval from the concerned authority.
Formula	$\frac{\text{Number of employees who is on unauthorised absence in 6 months}}{\text{Total number of employees in that month}} \text{X100}$
Unit	Percentage
Target	0%
Sample Size	100%
Area of Data Collection	HR division/Administrative office/HoDs.
Frequency of Data Collection	Biannually
Concerned official	In-charges and HoDs must submit the report or data to the HR division regularly, and the HR division must then submit the data to the QFP.
Data Source	HR /administration records.
Remarks	If possible, absenteeism should be calculated by the category of a healthcare professional. Another method for calculating absenteeism is to use the number of days employees are absent and the total number of employee days.
References	Ioan, Nestian and Tita,2012

Sample Calculation:

Total number of employees on unauthorised absence in 6 months: 2

Total Number of employees in those months: 250

Employee absenteeism rate:

$$\frac{\mathbf{2}}{\mathbf{250}}\mathbf{x100} = \mathbf{0.80}\%$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-23: Percentage of Employees Who Are Aware of Employee Rights, Responsibilities and Welfare Schemes	
Elements	**Details**
Definition	Employee awareness is the state or condition of being aware, knowing, and conscious about employee rights, responsibilities and welfare schemes.
Formula	$\frac{\text{Number of employees who are aware of rights, responsibilities and welfare schemes}}{\text{Number of employees interviewed}} \times 100$
Unit	Percentage
Target	>90%*
Sample Size	Refer to the sample size table
Area of Data Collection	All the departments and units (both clinical, supportive and administrative services)
Frequency of Data Collection	Annually
Concerned official	The survey must be organised or initiated by the HCC's QFP in collaboration with the management.
Data Source	QA document
Remarks	Nil
References	

Sample Calculation:

Total score achieved: 200 (100 from employee 1, 45 from employee 2 and 55 from employee 3)

Total maximum possible score: 225 Derived from 5 (max score for individual standard) x 15 (standards) X 3 (no of staff)

Employee awareness index:

$$\frac{\mathbf{200}}{\mathbf{225}}\mathbf{x100} = \mathbf{88.80}\%$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-24 (BHSQA KPI-62): Percentage of Sentinel Events Reported, Collected, and Analysed Within the Defined Time Frame	
Elements	**Details**
Definition	Sentinel events refer to an unexpected incident, related to system or process deficiencies, which leads to death or major and enduring loss of function for a recipient of healthcare services. Major and enduring loss of function refers to sensory, motor, physiological or psychological impairment not present at the time services were sought or begun. The impairment lasts for a minimum period of two weeks and is not related to an underlying condition.
Formula	$\frac{\text{Number of sentinel events analysed and resolved within the defined time frame in 6 months}}{\text{Number of sentinel events reported in that months}} \text{X}100$
Unit	Percentage
Target	100%*
Sample Size	Not applicable
Area of Data Collection	Administration/QA Unit
Frequency of Data Collection	Biannually
Concerned official	If the administration is retaining the data, it shall be submitted to the QFP per pre-defined frequency.
Data Source	Incident report
Remarks	
References	NABH,2015

Sample Calculation:

Total Number of sentinel events analysed and resolved within a defined time frame in 6 months: 2

Total Number of sentinel events reported in that month: 6

Percentage of sentinel events reported, collected and analysed within the defined time frame:

$$\frac{\mathbf{2}}{\mathbf{6}}\mathbf{x100} = \mathbf{33.30}\%$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI 25: Percentage of Near Misses	
Elements	**Details**
Definition	A near miss is an unplanned event that did not result in injury, illness, or damage – but had the potential to do so.
Formula	$\frac{\text{Number of near} - \text{misses}}{\text{Total number of reported safety events}} \text{x} 100$
Unit	Percentage
Target	10-15%
Sample Size	100% of reported safety events during the defined period.
Area of Data Collection	Incident reporting systems in all relevant departments.
Frequency of Data Collection	Monthly
Concerned official	Concerned in-charges shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Safety event reporting forms and risk management databases.
Remarks	Encouraging near-miss reporting promotes a proactive safety culture and helps prevent adverse events.
References	Ioan, Nestian and Tiţă, 2012; NABH, 2015; turnover and retention research report, 2021

Sample Calculation:
Number of Near-Misses Reported: 50

Total Number of Reported Safety Events: 200

Percentage of Near Misses:

$$\mathbf{\frac{50}{200} x100 = 25.00\%}$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-26 (BHSQA KPI-61): Incidence of Blood and Body Fluid Exposures	
Elements	**Details**
Definition	Exposure is when blood, blood components or other potentially infectious materials come in contact with staff's eyes, mucous membranes and non-intact skin or mouth.
Formula	$\frac{\text{Number of blood and body fluid exposure in a month}}{\text{Number of staff working days in that month}} \text{X1000}$
Unit	Per 1000 staff working days
Target	0
Sample Size	100%
Area of Data Collection	IPD/OPD
Frequency of Data Collection	Monthly
Concerned official	When an incident occurs, healthcare professionals must apprise in-charges, who must record it in the incident register and report to the QFP on a pre-determined frequency.
Data Source	Incident report
Remarks	If the unit is expressed in terms of staff working days, the incidence for both IPDs and OPDs (both clinical and support staff) can be calculated using the same formula.
References	Ioan, Nestian and Tita, 2012; NABH, 2015; Ahmad, Awang Lukman, Raja Omar and Jeffree,2021

Sample Calculation:
Total number of blood and body fluid exposure in a month: 6 (4 from IPD and 2 from OPD)

Total Number of staff working days in those months: 300 (7 staff in IPD and 3 staff in OPD, total staff working days is 10X30[no of days in a month] =300)

$$Incidence\ of\ blood\ and\ body\ fluid\ exposure:$$

$$\frac{\mathbf{6}}{\mathbf{300}} \times \mathbf{100} = \mathbf{20}\ \boldsymbol{per}\ \mathbf{1000}\ \boldsymbol{staff\ working\ days}$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-27 (BHSQA KPI-63): Incidences of Needle Stick Injuries	
Elements	**Details**
Definition	Needlestick injury is a penetrating stab wound from a needle (or other sharp objects) that may result in exposure to blood or other body fluids.
Formula	$\frac{\text{Number of needle stick injuries in a month}}{\text{Number of staff working days in that month}} \text{X1000}$
Unit	Per 1000 staff working days
Target	<2.18 per 1000 staff working days.
Sample Size	100%
Area of Data Collection	All units
Frequency of Data Collection	Monthly
Concerned official	When an incident occurs, the staff must report to the in-charges, who must record it in the incident register and report to the QFP on a pre-determined frequency.
Data Source	Incident report
Remarks	If more precise data is required, the Full-Time Equivalent (FTE) shall be used in the denominator.
References	Bgati,2021; Ioan, Nestian and Tita,2012; NABH,2015; Pruss-Ustun, Rapiti & Hutin,2003

Sample calculation:
Total number of needle stick injuries in a month: 10 (4 from OPD and 6 from ICUs)

Total Number of staff working days in those months: 300 (7 staff in OPD and 3 staff in ICUs, total staff working days is 10X30[no of days in a month] =300)

$$Incidence\ of\ needle\ stick\ injury:$$

$$\frac{\mathbf{10}}{\mathbf{300}} \times \mathbf{1000} = \mathbf{3.30\ per\ 1000\ staff\ working\ days}$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-28 (BHSQA KPI-64): Percentage of Medical Records Not Having a Discharge Summary or Incomplete	
Elements	**Details**
Definition	A discharge summary is the part of a patient record that summarises the reasons for admission, significant clinical findings, and procedures performed, treatment rendered, patient's condition on discharge and any specific instructions given to the patient or family (for example, follow-up medication). It is a summary of the patient's stay in the hospital written by the attending doctor.
Formula	$\frac{\text{Number of medical records not having discharge summary or incomplete in a month}}{\text{Total number of medical records screened}} \text{X100}$
Unit	Percentage
Target	0%
Sample Size	Refer sample size table
Area of Data Collection	Medical Record Unit/IPD
Frequency of Data Collection	Monthly
Concerned official	The medical record official/IPD in charge shall submit the data to the QFP per pre-defined frequency.
Data Source	ePIS/discharge summary
Remarks	Every medical record that comes to the medical record unit from the clinical unit following the discharge of a patient shall be immediately checked for the presence of a discharge summary and its completeness. If this is not present at this stage, it shall be captured as a part of the numerator.

Sample calculation:
Total Number of medical records without a discharge summary or incomplete in a month: 3

Total Number of medical records in a month: 50

Percentage of medical records not having a discharge summary:

$$\frac{\mathbf{3}}{\mathbf{50}} \times \mathbf{100} = \mathbf{6.00}\%$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-29 (BHSQA KPI-65): Percentage of Medical Records Not Having Codification as per the Bhutanese Traditional Medicine Classification of Diseases (BTMCD)	
Elements	**Details**
Definition	The BTMCD is a system used to categorise health conditions for various purposes, including epidemiological analysis, health management, and clinical use. It helps in evaluating the overall health status of populations, monitoring the incidence and prevalence of diseases, and tracking other health-related issues. In addition, the BTMCD takes into account various factors such as: Demographic characteristics and circumstances of affected individuals Reimbursement policies and financial considerations Resource allocation to healthcare services Adherence to quality standards and clinical guidelines for treatment
Formula	$\frac{\text{Number of medical records not having BTMCD codification in a month}}{\text{Total number of medical records screened}} \text{X100}$
Unit	Percentage
Target	<10%
Sample Size	Not applicable
Area of Data Collection	IPD/Medical Record Unit
Frequency of Data Collection	Monthly
Concerned official	The medical record official/IPD in-charge shall submit the report or data to the QFP per pre-defined frequency.
Data Source	ePIS/softcopy/hardcopy
Remarks	Every medical record that comes to the medical record unit from the clinical unit following the discharge or death of a patient shall be immediately checked for BTMCD codification. If this is not present at this stage, it shall be captured as a part of the numerator.

Sample calculation:

Total Number of medical records without BTMCD codification in a month: 10

Total Number of medical records in a month:50

Percentage of medical records not having codification as per the BTMCD:

$$\frac{\mathbf{10}}{\mathbf{50}} \times \mathbf{100} = \mathbf{20.00}\%$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-30 (BHSQA KPI-66): Percentage of Missing Medical Records	
Elements	**Details**
Definition	A medical record is considered missing when the record cannot be found from the medical record unit/DHIS2 after 72 hours of the record request.
Formula	$\frac{\text{Number of missing medical records in a month}}{\text{Total number of records that should be present in that month}} \text{X}100$
Unit	Percentage
Target	<10%
Sample Size	Refer sample size table
Area of Data Collection	Medical Record Unit /IPD
Frequency of Data Collection	Monthly
Concerned official	The medical record officer shall submit the report or data to the QFP per pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	Medical record/register/DHIS2
Remarks	Regular checks should be in place to ensure that there are no missing medical records or that medical records are filed in the wrong place. Records to be included are Discharge, Hospital Death certificate, Injury report/Medicolegal records.
References	NABH,2015; Bhati,2021

Sample calculation:

Total Number of medical records missing in a month: 1

Total Number of medical records in a month: 50

Percentage of missing medical records:

$$\frac{\mathbf{1}}{\mathbf{50}} \times \mathbf{100} = \mathbf{2.00}\%$$

Calculating using NABH recommendation sample size: Not applicable

TM KPI-31: TM Nurse Handover Compliance	
Elements	**Details**
Definition	TM Nurse handover is the process of transferring a patient's care, along with relevant information, equipment, professional responsibility, and accountability, from one TM nurse or team to another. It is facilitated using the structured Identification, Situation, Background, Assessment, and Recommendation (ISBAR) checklist.
Formula	$\frac{\text{Total no. of handovers done appropriately}}{\text{Total number of handover assessed}}$ x100
Unit	Percentage
Target	100%*
Sample Size	Refer sample size table
Area of Data Collection	Medical Record Unit
Frequency of Data Collection	Annually
Concerned official	The survey must be organised or initiated by the HCC's QFP in collaboration with the management.
Data Source	Medical record maintained (paper-based, ePIS and DHIS2)
Remarks	Handover is a critical communication tool for health workers, ensuring the accurate transfer of patient information and responsibilities. Documenting handovers for each shift promotes proper record-keeping, with ISBAR or SBAR being the most widely used structured tools for effective handover practices.
Reference	-

Sample calculation:

Total Number of TM nursing handovers in a year: 100

Sample Size (based on the sample size table): 79

Total Number of handovers done appropriately among the selected sample: 60

Percentage of handover compliance (nurse):

$$\frac{\mathbf{60}}{\mathbf{79}} \times \mathbf{100} = \mathbf{75.95}\%$$

TM KPI-32: Drungtsho Handover Compliance	
Elements	**Details**
Definition	Patient handover is the process of transferring a patient's care, along with relevant information, equipment, professional responsibility, and accountability, from one Drungtsho or team to another. It is facilitated using the structured Identification, Situation, Background, Assessment, and Recommendation (ISBAR) checklist.
Formula	$\frac{\text{Total no. of handovers done appropriately}}{\text{Total number of handover assessed}}$ x100
Unit	Percentage
Target	100%*
Sample Size	Refer sample size table
Area of Data Collection	Medical Record Unit
Frequency of Data Collection	Annually
Concerned official	The survey must be organised or initiated by the HCC's QFP in collaboration with the management.
Data Source	Medical record maintained (paper-based, ePIS and DHIS2)
Remarks	Handover is a critical communication tool for health workers, ensuring the accurate transfer of patient information and responsibilities. Documenting handovers for each shift promotes proper record-keeping, with ISBAR or SBAR being the most widely used structured tools for effective handover practices.
Reference	-

Sample calculation:

Total Number of Drungtsho handover in a year: 10000

Sample Size (based on the sample size table): 278

Total Number of handovers done appropriately among the selected sample: 250

Percentage of handover compliance (Drungtsho):

$$\frac{\mathbf{250}}{\mathbf{278}} \times \mathbf{100} = \mathbf{89.93}\%$$

TM KPI-33: Rate of Patient Identification Errors	
Elements	**Details**
Definition	A patient identification error is an unintended mistake in accurately recognising or verifying a patient's unique identity during the process of care. It can potentially compromise the patient's safety, lead to incorrect medical interventions, and disrupt the quality of clinical care. Improving the accuracy of Patient ID has been recognised as one of the most important patient safety goals since 2014 onwards.
Formula	$\frac{\text{No. of patient identification errors}}{\text{Number of patients}}$ x100
Unit	Percentage
Target	<1%
Sample Size	Not applicable; collect data from all reported errors.
Area of Data Collection	All departments
Frequency of Data Collection	Monthly
Concerned official	When an incident occurs, healthcare professionals must apprise in-charges, who must record it in the incident register and report to the QFP on a pre-determined frequency.
Data Source	Incident reporting systems or error registers are maintained by healthcare facilities.
Remarks	Patient identification errors are preventable through effective verification protocols, such as the use of two patient identifiers (e.g., name and date of birth). These incidents must be promptly reported, analysed, and corrected to ensure patient safety.
Reference	Nil
Sample calculation: Number of patient identification errors in a month: 4 Total number of patients in the same month: 2000 *Percentage of errors:* $\frac{\mathbf{4}}{\mathbf{2000}} \times \mathbf{100} = \mathbf{0.20}\%$	

TM KPI-34 (BHSQA KPI-43): Hand Hygiene Knowledge and Practices	
Elements	**Details**
Definition	Compliance with the latest moments and movements of hand hygiene practices.
Formula	$\frac{\text{Total score achieved}}{\text{Maximum possible score}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	At least 20% of the total clinical staff
Area of Data Collection	IPDs and OPDs
Frequency of Data Collection	Biannually
Concerned official	The IPC, in collaboration with HCC management, shall initiate or organise a General Audit.
Data source	Hand hygiene CA report
Remarks	This shall be captured through Clinical Audit.
References	Bakar, Rahmanand Nujid, 2013; NABH, 2015; WHO, 2021D

Sample calculation:
Total maximum possible score: 1000 (4 [max score for individual standard]x25standards10[no of employee assessed])

The total score achieved: 720

$$Compliance to hand hygiene knowledge and practices:$$

$$\frac{\mathbf{720}}{\mathbf{1000}} \times \mathbf{100} = \mathbf{72}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-35 (BHSQA KPI-37): Compliance with Infection Control and Medical Waste Management	
Elements	**Details**
Definition	Adherence to the latest national infection control and medical waste management guidelines.
Formula	$\frac{\text{Total score achieved}}{\text{Maximum possible score}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	Not applicable
Area of Data Collection	IPD/OPD and Administration
Frequency of Data Collection	Biannually
Concerned official	Clinical auditing must be organised or initiated by the infection control focal person in collaboration with the QFP and HCC management.
Data Source	IC & MWM assessment report
Remarks	This should be captured through conducting clinical audits on infection control and medical waste management practices.
References	Anand R, Krishnan Kutty, Rama Krishnan andVC,2018; RIB Software,2024

Sample calculation(for3unitsordepartments):
Total maximum possible score: 204 (4 [max score for individual standard] x 17standardsx3[no of units or departments audited)

The total score achieved: 40

$$Compliance\ to\ ICWM\ practices: \frac{\mathbf{40}}{\mathbf{204}} \times \mathbf{100} = \mathbf{19.61\%}$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-36 (BHSQA KPI-67): Follow-up of Referrals (In-country)	
Elements	**Details**
Definition	The percentage of feedback provided to referring district Traditional Medicine Hospitals/Units after receiving referred patients. As Bhutan's apex Traditional Medicine Hospital, NTMH serves as the primary referral centre for TM facilities nationwide, ensuring timely and effective feedback to improve patient outcomes and strengthen inter-facility collaboration.
Formula	$\frac{\text{Total number of feedback provided in 3 months}}{\text{Total number of referred patients received in that months}} \text{X100}$
Unit	Percentage
Target	>95%*
Sample Size	All the referred patients
Area of Data Collection	All the Drungtshos in NTMH
Frequency of Data Collection	Quarterly
Concerned official	All Drungtshos shall maintain this data and submit the report or data to the QFP per pre-defined frequency.
Data Source	Registry, ePIS, patient cross-referral form and TM patient referral form
Remarks	Nill
References	Ioan, Nestianand Tiţă, 2012; RIB Software, 2024

Sample calculation:

Total Number of patients received in 3 months:20

Total number of feedback sought after referral of cases in that months:7

$$Follow\text{-}upof\ referrals:$$

$$\frac{\mathbf{7}}{\mathbf{20}} \times \mathbf{100} = \mathbf{35}\%$$

Calculation using NABH recommended sample size: Not applicable.

TM KPI-37 (BHSQA KPI-56): Patient discharged before 11 AM	
Elements	**Details**
Definition	Patients are discharged from the healthcare centre before 11 am to minimise waiting time for discharge and the next admission.
Formula	$\frac{\text{Number of admitted patients discharged between 9 am – 11 am in a month}}{\text{Total number of patients discharged in that month}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	Refer sample size
Area of Data Collection	IPD or Medical Record Unit
Frequency of Data Collection	Monthly
Concerned official	IPD/ Record Unit in-charges shall submit the report or data to the QFP per the pre-defined frequency. The concerned HOD must ensure that this report is submitted.
Data Source	ePIS/Register/soft copy
Remarks	Some patients may have to be discharged after 11 a.m. due to unforeseen circumstances. Therefore, the patient can be discharged after 11 a.m. (20% will be acceptable). This is to avoid unnecessarily delaying discharge after 11 a.m. to meet the indicator of discharge before 11 a.m.
Reference	Nil

Sample calculation:

Total number of patients discharged before 11 am in a month:30

The total number of patients discharged in that month: 48

$$Patient\ discharged\ before\ 11am:$$
$$\frac{\mathbf{30}}{\mathbf{48}} \times \mathbf{100} = \mathbf{62.50}\%$$

Calculation using NABH recommended sample size: If the total number of patients is less than 50, use all the patients for calculation. If more than 50, calculate using NABH recommended sample size as shown in other examples.

TM KPI-38 (BHSQA KPI-45): 5S CQI Implementation	
Elements	**Details**
Definition	Compliance with the concepts of a sort, set, shine, standardise, and sustain continuous quality improvement.
Formula	$\frac{\text{Total score achieved}}{\text{Maximum possible score}} \text{X}100$
Unit	Percentage
Target	>90%*
Sample Size	Not applicable
Area of Data Collection	IPDs, OPDs and other units (maintenance, administration etc.)
Frequency of Data Collection	Biannually
Concerned official	The QFP in collaboration with HCC management, shall initiate or organise GA.
Data Source	5S-CQI assessment report
Remarks	This indicator will be captured through the general audit
Reference	Nil

Sample calculation:

Total maximum possible score: 1175 (5 [max score for individual standard] x47 standards x 5 [no of unit assessed])

The total score achieved: 800

5s-CQI implementation:

$$\frac{\mathbf{800}}{\mathbf{1175}} \times \mathbf{100} = \mathbf{68.00}\%$$

Calculation using NABH recommended sample size: Not applicable

ANNEXURE 1

NABH Recommended Sample Size

Screening population	Sample size
50	44
100	79
150	108
200	132
500	217
1000	278
2000	322
5000	357
10000	370
20000	377

ANNEXURE 2

Sample Reporting Format

INITIAL ASSESSMENT OF INDOOR PATIENTS BY DRUNGTSHOS (Name of KPI)

Month of _____, Year_____**Reporting month and year**)

Formula: $\frac{sum\ of\ time\ taken\ for\ assessment}{total\ number\ of\ patients\ (sample\ size)}$ (Formula)

Indicators for the Month of the Year:					**Report of the previous two months**	
Indicator	**Numerator**	**Denominator**	**Formula**	**Result**	**Jan**	**Feb**
Inpatient initial assessment by Drungtshos						

Name and signature

Department/Division/Unit

References

- Agarwal, R., 2013. Measurement of Errors in Clinical Laboratories. Indian Journal of Clinical Biochemistry, 28(3), pp.227-234.
- Ahmad, B., Khairatul, K. and Farnaza, A., 2017. An assessment of patient waiting and consultation time in a primary healthcare clinic. Malays Fam Physician., 12(1), pp.14–21.
- Ahri.com.au. 2021. TURNOVER AND RETENTION RESEARCH REPORT. [online] Available at: <https://www.ahri.com.au/media/1222/turnover-and-retention-report_final.pdf> [Accessed 3 May 2021].
- Al-Hashemi, H. (2019). Incidence, prevalence, and complications of pressure ulcers in general medical and surgical units using a multidisciplinary model (prospective cohort). Biomedical Journal of Scientific & Technical Research, 18(1). https://doi.org/10.26717/bjstr.2019.18.003109
- Anderson, D., Podgorny, K., Berríos-Torres, S., Bratzler, D., Dellinger, E., Greene, L., Nyquist, A., Saiman, L., Yokoe, D., Maragakis, L. and Kaye, K., 2014. Strategies to Prevent Surgical Site Infections in Acute Care Hospitals: 2014 Update. Infection Control & Hospital Epidemiology, 35(6), pp.605-627.
- Anand R, B., Krishnankutty, H., Ramakrishnan, K. and VC, V., 2018. KPIs for effective, real-time dashboards in hospitals. Infosys, [online] pp.1-7. Available at: <https://www.infosys.com/industries/healthcare/white-papers/documents/hospital-performance-bi.pdf> [Accessed 23 April 2021].
- Bakar, N., Rahman, P. and Nujid, M., 2013. Malaysian patient safety goals. 1st ed. Malaysia: Ministry of Health and patient safety council of Malaysia, pp.15-17.
- Ball, P., 2014. Medication Errors: Medication Orders with Error-Prone Abbreviations. Journal of Nursing & Care, 03(05).
- Bhati, S., 2021. 20 Key Performance Indicators Every Hospital Manager Should Know. [online] LinkedIn.com. Available at: <https://www.linkedin.com/pulse/20-key-performance-indicators-every-hospital-healthcare-bhati> [Accessed 21 April 2021].
- Bittner, E. and Schmidt, U., 2012. Tracheal Reintubation: Caused by "Too Much of a Good Thing"? Respiratory Care, 57(10), pp.1687-1691.
- Bouvy, J., De Bruin, M. and Koopmanschap, M., 2015. Epidemiology of Adverse Drug Reactions in Europe: A Review of Recent Observational Studies. Drug Safety, 38(5), pp.437-453.
- Brady, A., 2016. Error and discrepancy in radiology: inevitable or avoidable? Insights into Imaging, 8(1), pp.171-182.
- Cabral, E., Castro, W., Florentino, D., Viana, D., Costa Junior, J., Souza, R., Rêgo, A., Araújo-Filho, I. and Medeiros, A., 2018. Response time in the emergency services. Systematic review. Acta Cirurgica Brasileira, 33(12), pp.1110-1121.

- C Hawkins, R., 2007. Laboratory Turnaround Time. Clin Biochem Rev, 28, pp.179-194.
- C.W. Ahmad, C., Awang Lukman, K., Raja Omar, R. and Jeffree, M., 2021. A Cross-Sectional Survey on Occupational Blood and Body Fluid Exposure Risk in a Tertiary Hospital in East Malaysia. Risk Management and Healthcare Policy, Volume 14, pp.803-808.
- Datapine.com. 2021. Healthcare KPIs & Metrics - Explore Healthcare KPI Examples. [online] Available at: <https://www.datapine.com/kpi-examples-and-templates/healthcare> [Accessed 23 April 2021].
- Dorji, T., 2021. Drug Regulatory Authority. [online] Drug Regulatory Authority. Available at: <https://dra.gov.bt/> [Accessed 27 April 2021].
- Fujii, E., Fujino, K., Tanaka-Mizuno, S. and Eguchi, Y., 2018. Variation of Risk Factors for Cause-Specific Reintubation: A Preliminary Study. Canadian Respiratory Journal, 2018, pp.1-6.
- Global status report on blood safety and availability 2016. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.
- Gould, C., Umscheid, C., Agarwa, R., Kuntz, G. and Pegues, D., 2021. CAUTI Guidelines | Guidelines Library | Infection Control | CDC. [online] Cdc.gov. Available at: <https://www.cdc.gov/infectioncontrol/guidelines/cauti/> [Accessed 26 April 2021].
- Hammerling, J., 2012. A Review of Medical Errors in Laboratory Diagnostics and Where We Are Today: Table 1. Laboratory Medicine, 43(2), pp.41-44.
- Ioan, B., Nestian, A. and Tiţă, S., 2012. Relevance of Key Performance Indicators (KPIs) in a Hospital Performance Management Model. Journal of Eastern Europe Research in Business & Economics, 2012, pp.1-15.
- Khalifa, M. and Khalid, P., 2015. Developing Strategic Health Care Key Performance Indicators: A Case Study on a Tertiary Care Hospital. Procedia Computer Science, 63(2015), pp.459-466.
- Kirman, C., 2021. What is the global prevalence of pressure injuries (pressure ulcers)? [online] Medscape.com. Available at: <https://www.medscape.com/answers/190115-82430/what-is-the-global-prevalence-of-pressure-injuries-pressure-ulcers> [Accessed 27 April 2021].
- Kumar, R. and Gandhi, R., 2012. Reasons for cancellation of operation on the day of intended surgery in a multidisciplinary 500-bedded hospital. Journal of Anaesthesiology Clinical Pharmacology, 28(1), p.66.
- Lin, W., Chen, W., Chao, C. and Lai, C., 2018. The outcomes and prognostic factors of the patients with unplanned intensive care unit readmissions. Medicine, 97(26), p.e11124.
- Li, Z., Lin, F., Thalib, L., & Chaboyer, W. (2020). Global prevalence and incidence of pressure injuries in hospitalised adult patients: A systematic review and meta-analysis. International Journal

of Nursing Studies, 105, 103546. https://doi.org/10.1016/j.ijnurstu.2020.103546

- Madsen, F., Ladelund, S. and Linneberg, A., 2014. High Levels Of Bed Occupancy Associated With Increased Inpatient And Thirty-Day Hospital Mortality In Denmark. Health Affairs, 33(7), pp.1236-1244.
- Mahajan, H., Dhanerwa, R., Chauhan, P. and Gupta, A., 2017. A Comparative Study of Key Quality Performance Indicators in Anaesthesia and Surgery, between the Years 2013 and 2014, in the Operation Theatre at Indian Spinal Injuries Centre, New Delhi. Journal of Medical Science And clinical Research, 05(02), pp.17269-17277.
- Miltiades, A., Gershengorn, H., Hua, M., Kramer, A., Li, G. and Wunsch, H., 2017. Cumulative Probability and Time to Reintubation in U.S. ICUs. Critical Care Medicine, 45(5), pp.835-842.
- NABH, 2015. National accreditation board for hospitals and healthcare providers (NABH): a guidebook to accreditation standards for hospitals. 4th ed. NABH, pp.130-150.
- Oecd-ilibrary.org. 2021. Hospital beds and discharge rates | Health at a Glance 2019: OECD Indicators | OECD iLibrary. [online] Available at: <https://www.oecd-ilibrary.org/sites/0d67e02a-en/index.html?itemId=/content/component/0d67e02a-en> [Accessed 1 May 2021].
- Parmenter, D., 2015. Key performance indicators: developing, implementing, and using winning KPIs. 3rd ed. New Jersey: John Wiley & Sons, Inc, pp.3-23.
- Prüss-Üstün A, Rapiti E, Hutin Y. Sharps injuries: global burden of disease from sharps injuries to health-care workers. Geneva, World Health Organisation, 2003
- Ramakrishnan, N., John, G., Ray, B., Todi, S. and Samaddar, D., 2009. Quality indicators for ICU: ISCCM guidelines for ICUs in India. Indian Journal of Critical Care Medicine, 13(4), pp.173-206.
- Reproductive Health Matters, 2015. WHO Statement on caesarean section rates. 23(45), pp.149-150.
- The OECD. 2021. Health care use - Length of hospital stay - OECD Data. [online] Available at: <https://data.oecd.org/healthcare/length-of-hospital-stay.htm> [Accessed 30 April 2021].
- Tsai, E., Tintu, A., Demirtas, D., Boucherie, R., de Jonge, R. and de Rijke, Y., 2019. A critical review of laboratory performance indicators. Critical Reviews in Clinical Laboratory Sciences, 56(7), pp.458-471.
- Uhb. nhs. The UK. 2021. Time to initial assessment in A&E. [online] Available at: <https://www.uhb.nhs.uk/time-to-initial-assessment-in-a-and-e.htm#:~:text=The%20time%20to%20initial%20assessment, waiting%2015%20minutes%20or%20less.> [Accessed 23 April 2021].
- Vijay, J., Mathew, N., Guttikonda, A., Mitra, S. and Abhilash, K., 2020. The emergency department revisits within 72 hours to a tertiary care referral hospital in South India. Current Medical Issues, 18(1), p.23.

- WHO, 2021. Assessing and Managing Medicine Safety. [online] Who. int. Available at: <https://www.who.int/medicines/technical_briefing/tbs/04-PG_Dug-Safety_final-08.pdf?ua=1#:~:text=Adverse%20drug%20reaction%20(ADR)%E2%80%94,the%20modification%20of%20physiological%20function.%E2%80%9D> [Accessed 26 April 2021].
- Who. int. 2021. Indicator Metadata Registry List. [online] Available at: <https://www.who.int/data/gho/indicator-metadata-registry/> [Accessed 26 April 2021].
- Who. int. 2021. Infant mortality rate (per 1000 live births). [online] Available at: <https://www.who.int/data/maternal-newborn-child-adolescent-ageing/indicator-explorer-new/mca/infant-mortality-rate-(per-1000-live-births)> [Accessed 2 May 2021].
- WHO, 2021. Key facts and figures. [online] Who. int. Available at: <https://www.who.int/campaigns/world-hand-hygiene-day/2021/key-facts-and-figures> [Accessed 23 April 2021].
- Who. int. 2021. Maternal mortality ratio (per 100 000 live births) (SDG 3.1.1). [online] Available at: <https://www.who.int/data/maternal-newborn-child-adolescent-ageing/indicator-explorer-new/mca/maternal-mortality-ratio-(per-100-000-live-births)> [Accessed 2 May 2021].
- Young, J. and Dobrzanski, S., 1992. Pressure Sores. Drugs & Aging, 2(1), pp.42-57.