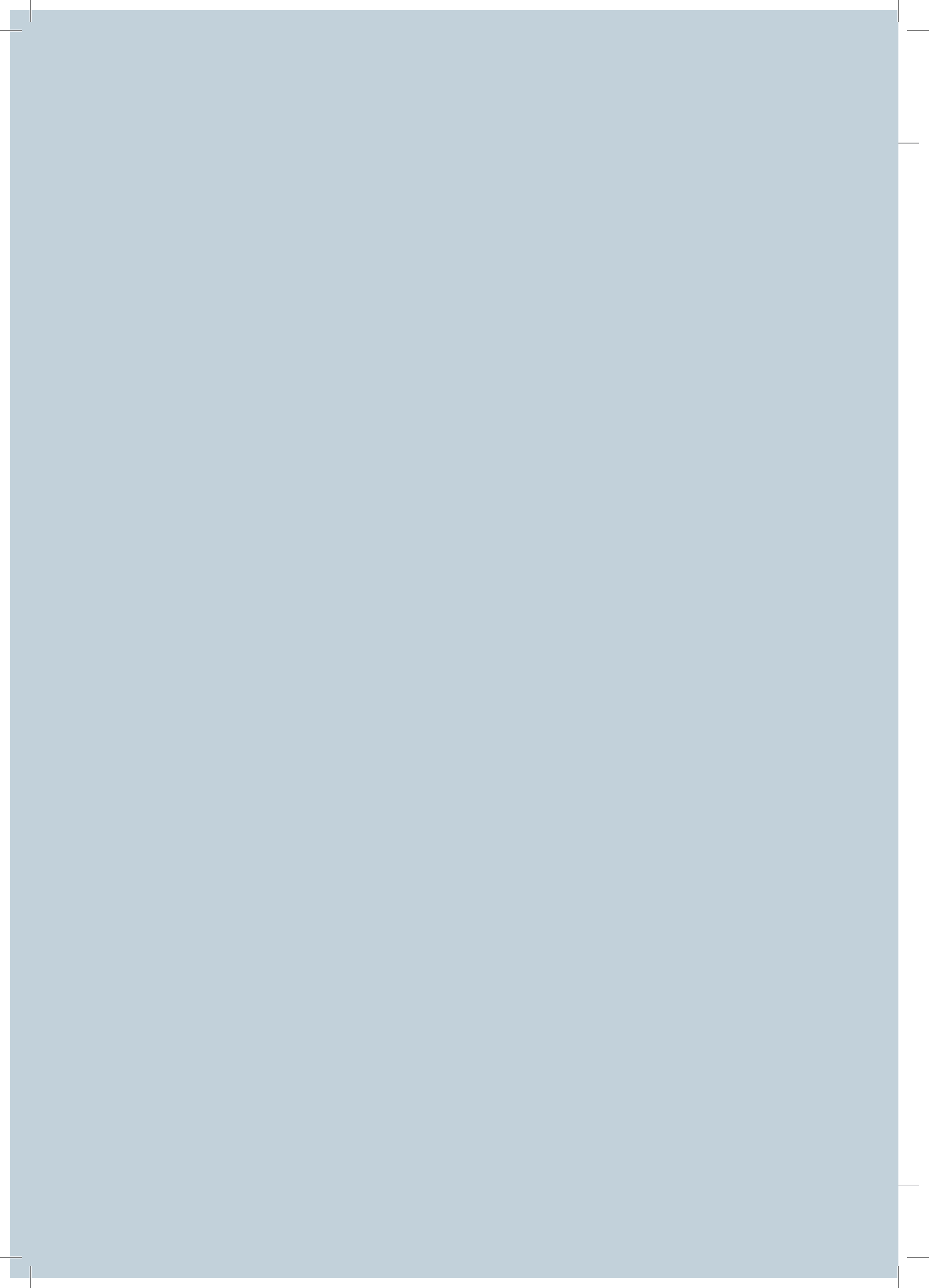


**NATIONAL  
DRUG SURVEY  
2014 - 2016**

**CHAPTER 11**  
**SUMMARY & RECOMMENDATIONS**

ON

POSSIBLE STRATEGIES AND IMPLEMENTATION PLAN TO  
ADDRESS THE PROBLEMS IDENTIFIED





# SUMMARY & RECOMMENDATIONS

*On Possible Strategies and Implementation Plan to Address the Problems Identified*

## INTRODUCTION

**T**he consumers have a right to access Drugs that are safe and of good quality and the Government of India is committed towards it. Spurious and NSQ Drugs can adversely impact the quality of treatment and cause harm to patients, besides contributing to emergence of Drug resistance and spread of disease. Countering the problem of circulation of Spurious and NSQ Drugs requires support and cooperation of all the stakeholders i.e. policy makers, drug regulatory and law enforcement agencies, drug testing laboratories, manufacturers, distributors including retailers, healthcare professionals and members of Civil Society. The “Survey of Extent of Problems of Spurious and Not of Standard Quality (NSQ) Drugs in the Country” has identified problems related to quality of Drugs in the country. It underlines the roles of stakeholders in addressing these problems.

### Ministry of Health and Family Welfare

The Ministry of Health and Family Welfare, Government of India decided to conduct a “Survey of Extent of Problems of Spurious and Not of Standard Quality (NSQ) Drugs in The Country” and fixed the following objectives for the study:

- Estimate proportion of specific critical quality standards at different points of supply chain
- Estimate proportions of Spurious and Not of Standard Quality Drugs (NSQ) in the country
- Identify possible causes of findings
- Propose possible strategies and implementation plan to address the problems identified

The Ministry assigned the planning and conduct of this survey to Director, National Institute of Biologicals (NIB). A budgetary allocation of Rs. 8.5 Crores

(USD 1.25 Millions) for this study was made by the Ministry and it also facilitated the study by providing all support to NIB.

At the heart of the drug survey was its innovative methodology devised by Drugs Survey – Core Expert Committee of NIB. The methodology covered all major therapeutic categories, highest ever number of drug molecules in any study, entire range of dosage forms dispensed through Government as well as Retail sources, sampled from the length and breadth of the country using a statistically designed three stage sampling plan prepared by Indian Statistical Institute, Hyderabad, Ministry of Statistics and Programme Implementation, Government of India.

One of the highlights of the survey was its cost effective in-house software “AKS Software” developed by Drugs Survey - Software Development Team of NIB. The AKS Software facilitated collection, collation, segregation and analysis of data during the drug survey. AKS Software also had important capability for mapping of Drugs sampling activities of the Sample Drawing Officers in the field and Track & Trace mechanism facilitating reconciliation of Drugs samples at various stages of drug survey.

A robust training program for Sample Drawing Officers played an important role in the successful conduct of the Survey. To complete the training program in efficient, uniform and time bound manner, trainers were trained centrally at NIB, who in turn imparted training to sample collection teams comprising of State and Central drug inspectors and representatives of Civil Society/ Pharmacy Council of India. The entire training to the sample collection teams at 28 regional centers across the country was cascaded in a short span of 2 to 4 days. A unique feature of the training was a specially developed animated video prepared by the Drugs Survey – Core Expert Committee for better understanding and easy recall of the sampling and data collection processes.

A total of 47,954 samples were drawn under the survey by State and Central drug inspectors wherein the State Drug Controllers served as Nodal Officers and co-ordinated the sample collection and their dispatch to NIB.

As per the directions of the Ministry, drug samples drawn under the survey were tested in the seven Central and three State Government Drug Testing Laboratories. All of these laboratories are accredited by NABL. These drug testing laboratories rose to the occasion and tested the allocated samples by augmenting human resource, infrastructure capability and quality systems. The laboratory test/analysis data was analysed by Indian Statistical Institute,



Hyderabad which, besides presenting the main results of the estimates of extent of Spurious and NSQ Drugs also addressed various issues in connection with this survey viz. source wise and location wise distribution of samples drawn under survey, hit rates, inclusion probabilities of selected molecules, contribution of tests to failure of samples, analysis of date expired samples, NSQ percentages for molecules, dosage forms and manufacturers, etc.

## FINDINGS OF NATIONAL DRUG SURVEY

### NSQ and Spurious Drugs Database

The extent of NSQ and Spurious Drugs for Retail Outlets and Government sources in the country was estimated to be 3.16% and 0.0245% respectively.

#### Retail Outlets

The estimated percentage of NSQ and Spurious Drugs from Retail Outlets in the country was 3% and 0.023% respectively. Out of 69 tests performed on the samples from Retail Outlets, they failed in 28 tests. The total number of non-compliance out of all tests of 1011 NSQ samples from Retail Outlets was 1,251, of which, Dissolution and Assay accounted for 56.4% of the non-compliance.

State wise, NSQ percentage estimates for Retail Outlets varied from 0 to 8.82% (with the exception of Lakshadweep); States/UTs like Mizoram, Nagaland, Meghalaya, Manipur, Tripura, Puducherry, Gujarat, and Punjab were on the higher side of NSQ (4.20 – 8.82%) whereas, States/UTs like Andaman and Nicobar Islands, Dadra and Nagar Haveli, Goa, West Bengal, Delhi, Jharkhand and Kerala were on the lower side of NSQ (0 - 1.97%).

#### Government Supply Chain

The estimated percentage of NSQ Drugs from Government sources in India was 10.02% and for Spurious Drugs was 0.059%. During analysis of samples declared NSQ from Government supply chain, the following trend was observed: Civil Hospital Stores: 11.03% NSQ, State Government Medical Store Depots: 10.44% NSQ, ESI Dispensaries: 9.01% NSQ, CGHS Dispensaries: 4.11% NSQ.

State wise, NSQ percentage estimates varied from 0 to 17.39% percent (with the exception of Sikkim); States like Meghalaya, Mizoram, Arunachal Pradesh, Nagaland, Telangana, Uttarakhand, Uttar Pradesh and Punjab were on the higher side of NSQ (11.39 - 17.39%) whereas Chandigarh, Delhi, Orissa, Tamil Nadu and West Bengal were on the lower side of NSQ (0 - 7.93%).

Out of 69 tests performed on the samples, they failed in 27 tests. The total number of non-compliance out of all tests of all samples from Government sources was 1,177, of which, Assay and Dissolution accounted for 46.1% of the non-compliance. The fact that the NSQ from Government sources are 3.17 times higher than in the retail highlights that there is something amiss in the existing procurement processes especially in states where the NSQ is much higher than the National average.

Further, lack of uniform levels of enforcement may be leading to difference in the extent of NSQ in retail outlets and Government supply chain in different States/UTs. The NSQ's are much higher in case of parenterals as compared with oral dosage forms and this area therefore needs special attention.

### **Ports**

None of the samples drawn from Air/Sea Ports were found to be NSQ or Spurious.

## **RECOMMENDATIONS**

**The recommendations for the role and responsibility of the various Stakeholders in addressing the problems of Spurious and NSQ Drugs in the country are as hereunder:**

### **A) GOVERNMENT**

To improve the Quality of Drugs both in retail and Government supply chain, the Government needs to focus on the following strategies:

#### **1. Minimise NSQ drugs in the Government sources.**

**To address these problems the government should evolve following strategies with implementation plan:**

- a). There is a need for Government procurement agencies to revisit their procurement guidelines with respect to criteria for qualifying the manufacturers. The agencies should develop and implement risk based pre-inspection norms for selection of manufacturers of quality Drugs and adopt quality testing of each consignment from NABL Accredited laboratories.
- b). Government warehouses, medical store depots and pharmacies should have adequate storage facilities and provision for temperature and



humidity control, sufficient air conditioned space, refrigerators, deep freezers etc. along with their annual maintenance contracts. These facilities, should be inspected at least once a year by a joint team of CDSCO and State Licensing Authorities (SLA). Alternatively, third party inspections by accredited bodies could be considered, however, this will not be a substitute for regulatory inspections.

- c). Agencies should conduct regular skill development training for the medical store officers, pharmacists and other staff members for handling of Drugs, inventory control, Good Storage and Warehousing Practices and proper documentation in digital format.
- d). Government Hospitals should set up modern hospital pharmacies manned by an officer with appropriate pharmacy qualifications.
- e). Entire data of Government Drugs Supply Chain should be digitised for efficient inventory control, monitoring and surveillance .

## **2. Reduce dependence on imports of Active Pharmaceutical Ingredients (APIs)**

**In this Drug Survey over a period of three months, 4987 samples were drawn at the air ports / sea ports. It was observed that 98.51% of these samples were that of APIs of which 91.87% were from China. One company from China alone accounted for 26.82% of APIs imported into our country. In light of these facts, it is imperative that Government may take measures to upscale existing indigenous production capacity of APIs and set up new manufacturing units to enhance production to meet the country's need.**

## **3. Create a National Digital Database Registry**

In order to draw Drug samples from Retail Outlets and Government sources the list of all registered sources was needed to begin with. The States/UTs provided the lists of registered sources for 4,24,525 Retail Outlets in 572 districts out of 676 districts in the country. For the remaining 104 districts, the States/UTs were able to provide information for only the number of registered outlets i.e. 32,978, without any information in respect of Addresses of outlets, Licensing details etc. Even for those outlets where the information was made available, the quality of the data on registered outlets was inadequate. With regard to Government sources, the total number was 10,555 but the complete information was available only for 3,060 sources. This highlights the inadequacy of existing systems put in place by the State Licensing Authorities.

The Government should create a National Digital Database of all distributors, retailers/ pharmacies, Government sources, name and contact information of licensed pharmacists which should be regularly updated. Preferably, the data should get updated automatically.

#### **4. Laboratory Infrastructure**

The 10 Government drug testing laboratories engaged in this survey faced a number of challenges in carrying out testing of drug survey samples in terms of instrumentation, columns, consumables, and adequate manpower. However, the resources were augmented and keeping the requirement in view, testing was undertaken in two/three shifts.

Learning from this experience, Ministry should augment the existing Central and State drug testing capacity besides setting up additional new drug testing laboratories to cope with the testing of large number of surveillance and regulatory Drugs samples. These laboratories need to be equipped with sufficient number of trained analysts, latest instrumentation and with adequate provision for consumables. All drug testing laboratories should be made ISO 17025 compliant. Government must provide adequate budgetary support to laboratories in this regard .

#### **5. National Drugs Regulatory Training Academy**

The Government should consider setting up of a National Training Academy in Drugs Regulatory Sciences to create a National Talent pool of skilled regulatory manpower which will contribute in realizing the objective of India becoming the Pharmacy of the World.

Continued training is critical to ensure that drugs regulators remain proficient in their operational functions and in their understanding of current Good Manufacturing Practices, Good Laboratory Practices and Good Distribution Practices. Training in Quality System should address the operational activities, behavioural issues and work culture e.g., team building, communication and attitudinal change.

*The National Training Academy should institutionalize training of drug regulators, both new recruits and in-service officials, to enhance their depth and width of regulatory know-how, skill and competence in various areas of drug regulation, enforcement and data integrity. The training should be conducted by experienced faculty on a regular basis and participants should be subjected to pre- and post-training assessments including behavioural aspects and skill*





*development. Modern digital technology tools should be leveraged to achieve these objectives and to integrate all stakeholders in the system so as to create a National Regulatory Knowledge Sharing Platform to bring transparency, accountability and traceability in the drug supply chain management throughout the country.*

*Eventually the Government may consider upgrading the National Training Academy to a University of Drug Regulatory Sciences.*

## **B) DRUG REGULATORS**

**For this study, a total of 47,012 samples were analysed of which 8 samples (0.023%) from Retail Outlets and 5 samples (0.059%) from Government sources were found to be Spurious. These samples failed to meet identification test of the labelled drug or had zero active ingredient. Further, 1011 samples (3%) from Retail Outlets and 839 samples (10.02%) from Government sources were declared NSQ for various reasons.**

**To address these problems the regulators should evolve following strategies and implementation plan:**

1. Use digital technology to establish seamless functional integration of Centre-State / State –State drugs regulatory activities to share information especially in respect of Spurious and NSQ drugs for rapid regulatory intervention and batch recall.
2. Enforcement of regulatory guidelines for drug manufacturing, storage, sale, distribution and recall.
3. Adopt modern drug detection technology to implement rapid scanning, visual and analytical identification of potential Spurious and NSQ products in the rural and urban markets of country. Mobile Drugs laboratory technology be used to facilitate rapid detection of NSQ drugs and enforcement at remote rural locations besides cities and towns.
4. Facilitate regulation for transparent and secure drug distribution system which results in product traceability and reconciliation throughout the supply chain in case of quality issue or nation wide recall. Further, enforce procedures that ensure that the quality and integrity of the products are not compromised during transportation i.e. the identity of the product is not lost, the product is not contaminated, adequate precautions are taken against misappropriation and pilferage and appropriate environmental

conditions are maintained, e.g. using cold chain for thermo-labile products and storage at appropriate temperature.

5. The Central and State/UT Drug Controllers, while granting the marketing approval for a drug, should ensure that in-process quality testing plans, including validated methods and specifications along with the stability study data is included in the application. The inspection should also be carried out to confirm that the in-process tests were done, as described in the plan, and ascertain that the results were within specifications. To avoid delays in testing the sample, these validated methods and specifications provided with the applications should also be shared with drug testing laboratories.
6. During routine surveillance the number of samples drawn by the Centre and the States should always be statistically significant to ensure quality, safety and efficacy of drugs. Besides, surveillance samples, risk based criteria be used to draw samples. More samples of parenterals and other drugs that did not meet the quality standards be drawn.
7. Robust GMP inspections be carried out by a joint team comprising of an officer of CDSCO and State representatives. Laboratory personnel of both State and Center should also be involved in the inspection process. Overseas manufacturing units from where imports are taking place should also be inspected.
8. A central licensing portal should be developed to ensure that the entire data about licensed premises and the product is available centrally. It would be necessary to develop a system of surveillance to identify non-licensed manufacturers operating in different States
9. A suitable track and trace mechanism for monitoring of the movement of drugs in the domestic and international commerce should be evolved over a period of time.
10. The CDSCO should also organise training programs for manufacturing units in association with Department of Pharmaceuticals, WHO and other regulators. The manufacturing units that do not conform to GMP/GLP be asked to stop production.
11. Focused attention should be given to ensuring quality of parenterals since more NSQs amongst parenterals have been observed in this survey. This is more so, as parenterals are administered when patients are in much more critical state.



12. Robust recall mechanism must be put in place to withdraw a batch of the drug which is declared Not of Standard Quality or Spurious from the entire supply chain.
13. The strength of regulators should be increased appropriately to ensure more robust inspection, collection, testing and analysis of samples. Their capabilities, skills and regulatory knowledge should be assessed on a regular basis.

### **C) GOVERNMENT DRUG TESTING LABORATORIES**

**NSQ samples from Retail Outlets did not comply with 1,251 laboratory tests, out of which 420 non-compliance (33.6%) were in dissolution and 283 non-compliance (22.6%) were in Assay. Similarly, out of 1,177 tests failed by NSQ samples from Government sources 282 non-compliance (23.96%) were in assay and 261 (22.18%) were in dissolution.**

**For testing of 47,012 samples the laboratories took about 371 days on an average from the dispatch of first consignment of samples for testing and the last Test & Analysis report received by NIB.**

**To address these problems the Drugs Testing Laboratories should evolve following strategies with implementation plan:**

1. Enhancement of the existing testing capacity. Further they should equip themselves with sufficient trained manpower, latest instrumentation which is validated and calibrated in a regular manner and get themselves accredited.
2. Equip themselves to have regular access to reference substances, validated methods and consumables like HPLC and GC columns to perform pharmacopoeial tests. They should also make provisions for replacement, annual maintenance of all instrumentations and utilities to ensure optimum performance and desired outcomes.
3. Analytical and documentation skills of Government Analysts need to be upgraded by regular training programmes within the country and abroad. Their testing capabilities, skills and technical knowledge should be assessed on a regular basis.

### **D) DRUG MANUFACTURERS**

**47,012 Drugs Samples drawn and subjected to test / analysis under the Survey were from 1719 manufacturing units. The data of 1,850 NSQ samples**

**showed that these were from 569 manufacturing units. Of these, 10% of manufacturing units were responsible for about 50% of NSQ samples. Further, one third of total NSQ samples were from 22 manufacturing units**

**The reasons for non-compliance was mainly due to failure in assay, dissolution and related substances. These defects generally happen when the GMP and GLP requirements are not fully compliant i.e. Quality of input raw materials are unsatisfactory, products are not properly formulated, manufactured and/or are not able to withstand adverse conditions during distribution and storage.**

**To address these problems the manufacturers and their associations both professional and trade, should evolve following strategies with implementation plan:**

1. Create work culture of quality bottom-up and top- down so as to own quality of their products through-out the production and supply chain including distribution and retailing. Further, there should be continual training of all employees to ensure that they remain proficient in their operational functions, understanding of current GMPs and GLPs and their implementation.
2. Systems should be put in place for promptly implementing corrective actions and preventive steps on non-compliance reports, complaints from consumers, non-conformances from regulatory inspections and product quality monitoring including product recall.
3. Ensure data integrity in manufacturing operations and laboratory test / analysis data.
4. Manufacturers should allocate sufficient resources for developing robust quality systems for laboratory analysis of the finished drug products, in-process quality control, stability studies and control samples.
5. This also calls for a need to set up the third party conformance bodies who would need not be involved in regulatory work but will help industry to ensure compliance with GMP/GLP.

## **E) DRUG DISTRIBUTORS AND RETAILERS**

**Among the 33,656 samples collected from retail outlets , 1011 (3%) samples were found to be NSQ.**



**To address these problems of NSQ in Retail, the distributors and retailers and their trade associations should evolve following strategies with implementation plan:**

1. Retailers are the first port of call for the consumers for getting their supply of safe and quality Drugs. They must ensure that Drugs are procured from authorized channels and maintain proper records of procurement to track and trace the movement of the Drugs from the manufacturer to the user.
2. Retailers and distributors should modernize and digitize the mechanism of procurement and inventory control of all their operations and ensure presence of qualified pharmacists to dispense Drugs as required by law.
3. Retailers should ensure that storage conditions for Drugs and materials are in compliance with the labelling provisions of the law. Drugs should be stored in conditions which assure that their quality is maintained throughout their shelf life.
4. Retail organisations should train all personnel involved in distribution and dispensing activities on the requirements of Good Distribution Practices including documentation. They should undergo regular training to acquire the appropriate competency and experience to perform their tasks.
5. Retailers should quarantine and promptly notify regulators about a drug that has been identified as suspect, meaning that it may be Spurious, NSQ or potentially harmful. In instances of product recall, they must cooperate with the regulatory agencies.
6. System of third party inspections of retail outlets including in hospitals, dispensaries, wellness centres should be put in place to ensure adherence to the requirement of Good Distribution Practice (GDP)/ Good Storage Practice (GSP).

**G) CIVIL SOCIETY**

**In all, samples from 15 therapeutic areas were selected for survey. Among these 523 samples belonging to anti-infective Drugs and 516 samples belonging to gastrointestinal medicines were found to be NSQ. From consumer perspective, Drugs survey samples belonging to anti-infective Drugs and gastrointestinal medicines accounted for more than 50% of all NSQ samples.**

**To address these problems the consumer associations should evolve following strategies with implementation plan:**

1. Identify and promote consumer friendly retail outlets which display retail licence from competent authority, have a presence of Pharmacist, proper reporting and redressal mechanism is in place i.e. consumer complaint number, toll free number or website address of the competent authority.
2. Create technology enabled awareness campaigns for consumers to empower them to differentiate between Genuine and Spurious Drugs by examining batch number, expiry date, packaging, track and trace technologies. Create awareness amongst consumers to always insist on a proper receipt while purchasing medicines with all information as mandated in the law.
3. Consumer Organisations should participate with regulators in countrywide and state-wide surveillance of quality of Drugs. This can be in form of institutionalised engagement with States / Centre Government on Drug quality monitoring and surveys.

**H) HEALTH PROFESSIONALS**

**This study examined 183 drug molecules belonging to branded and generic formulations from different therapeutic categories. The results showed that 114 samples (12.30%) of pantoprazole, 111 samples (11.19%) of oral rehydration salts and 62 samples (28.31%) of gentamicin failed in quality testing.**

**Such information needs to be communicated to the health professionals who regularly prescribe, dispense and administer medicines to patients. To address the problems of Spurious and NSQ Drugs, the health professionals and their Associations may be engaged in the following roles:-**

1. Inform regulators about consumer complaints related to quality of drugs.
2. Medical, Dental, Nursing and Pharmacy Councils should train students about hazards of Spurious and NSQ Drugs.
3. Healthcare professionals must engage with Government and Civil Society in creating awareness among patients and general public, about the perils of Spurious and NSQ Drugs.
4. Pharmacy Council of India may consider including Drug Survey methodology in pharmacy education curriculum.



## EPILOGUE

**This National Drugs Survey has estimated, “the Extent of Problems of NSQ and Spurious Drugs in the Country”, identified the gaps in the Drugs Regulatory System and Supply Chain Management and suggested possible strategies and implementation plans to address these gaps. In order to provide access to safe and quality medicines, the findings from the survey and the suggested measures need to be leveraged in an institutionalised manner for the benefit of the society and various stakeholders in the healthcare delivery system in country. It is of utmost importance that the central and state drugs regulators and the Government procurement agencies endeavour and reduce the extent of NSQ Drugs substantially in next 3-4 years.**

