

The Development of Clinical Pharmacy in Indonesia:  
*Past, Present and Future*  
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## 1. Introduction

Indonesia is an archipelago country which has 13,466 islands, lying between Asia and Australia. More than 80% of Indonesia's territory is covered with water, with its land area about 1,910,931.32 km<sup>2</sup>. The five major islands are Sumatra in the West, Java in the South, Kalimantan straddling the equator, Sulawesi, and Papua bordering Papua New Guinea.

According to the 2015 Population Census, the population of Indonesia was around 252.4 million. This makes Indonesia the fourth most populous country in the world after the People's Republic of China, India and the United States of America (USA). The large number of islands, population, and their dispersion over a wide area has given rise to diverse cultures, as well as six hundreds of ethnic groups and languages. However, the majority speak the national language, Bahasa Indonesia.

In the year of 2000, Clinical pharmacy has been implementing in Indonesia. According to SHPA, the definition of Clinical pharmacy practice is the practice of pharmacy as part of multidisciplinary healthcare team directed at achieving the quality use of medicines (QUM)<sup>1</sup>. This may include taking part in the medication management of individual patients, giving along of clinical knowledge and skills with the healthcare team, identifying and reducing risks associated with medicines use, taking part in the education of patients, carers, and other health professionals, and taking part in research.

Implementation of Clinical Pharmacy Practice in the Indonesian Health System requires support from Medication Management and Use System (MMUS). MMUS contains two systems that were integrated into one big system. The two systems are medication management system and medication use system. All of them integrate into one cycle including medicines selection, procurement, storage, distribution, prescribing, transcribing, preparation/compounding, dispensation, administration, documentation, monitoring and evaluation.

The objective of this study is to describe the Healthcare System in Indonesia, to elaborate the development of clinical pharmacy practice in Indonesia, and the role of higher education in preparing the human resources for supporting implementation of Clinical Pharmacy in Indonesia.

## 2. Healthcare System

There are public and private sectors in Healthcare system in Indonesia, and starting in January 2014 when Indonesian Government launched Jaminan Kesehatan Nasional- JKN (National Health Coverage), which is managed by the *Badan Penyelenggara Jaminan Sosial-BPJS* (National Institution of Social Security). Coverage is expanded year after year; the goal is to complete coverage in 2019. In May 2014, the cover approx. is 50% of population. The JKN's members and Premium Rates are divided two categories of members; those with incomes below the poverty line are premiumly paid by the government, and those who pay the premium.

The scheme of payment are as shown in Table 1:  
Table 1 Scheme of Premium Rates in JKN Indonesia

Member	Premium rates	Monthly membership fee (IDR)
Subsidised members (below poverty line)	NOMINAL (per member)	19.225,-
Civil servants/ army/ police/ retired seniors	5% (per household )	2% from employee 3% from employer
Other workers – with monthly salary/ wage	5% (per household)	1% from employee 4% from employer
Workers – without monthly salary/wage OR independent members	NOMINAL (per member)	3 choices of benefits: 1. 25.500,- 2. 42.500,- 3. 59.500,-

The JKN method of payment for the JKN Health care providers are as follows:

1. Primary health care providers.
  - a. Capitation: advanced payment based on the number of registered members.
  - b. Non-capitation: reimbursement based on the cost of healthcare that was provided.
2. Secondary and tertiary health care providers.
  - a. Ina-CBG's (Case-based group): reimbursement based on the healthcare package for specific illnesses.

### 3. The Development of Clinical Pharmacy

#### 3.1 Pharmacy Practice: Past (<2000s)

In 1995, there were 7,802 registered pharmacists: 43% in community pharmacy, 10% in hospitals and 11% in industry. The Ratio is 1 pharmacist per 25,634 people. Practising pharmacists are registered with *Ikatan Sarjana Farmasi Indonesia – ISFI* (Pharmaceutical Society of Indonesia) that has no legal powers, has limited disciplinary powers, and is very much a loose federation of provincial branches.

#### 3.2 Clinical Pharmacy Practice: Starting Point

The development of Clinical Pharmacy in Indonesia was started in the year 2000 and published in *The Pharmaceutical Journal* Vol. 264 No. 7098 p. 817-819 May 27, 2000 by C.K. Tan, PhD, M R Pharm S, and M. Aslam, PhD, F R Pharm S. In 1999 was set up a Centre for Medicines Information and Pharmaceutical Care (CMIPC), at Faculty of Pharmacy, Universitas Surabaya, as a result of the higher education link with British Council, Universita Surabaya and Nottingham University. The aims is to promote the effective, safe, rational and cost-effective use of medicines.

In 2003: clinical pharmacy included within the Faculty of Pharmacy Universitas

Surabaya curricula and in 2005 the first Magister in Clinical Pharmacy was established in the Faculty of Pharmacy – Universitas Surabaya. There are some publications of CMIPC for healthcare professionals and communities. Those are clinical pharmacy textbooks, rational bulletins, medicament bulletins, iv admixture books, pregnancy books, etc.

### 3.3 Clinical Pharmacy Practice: Present (2000s)

Indonesian Government Regulation No. 51 of 2009 regarding Pharmacy Practice declares that *Pharmacists are professional health personnels authorized to conduct pharmaceutical practices that include:*

1. *Production and quality control of pharmaceutical products.*
2. *Safety assurance, procurement, storage and distribution of medications*
3. *Supply of prescription medications.*
4. ***Provision of drug information services.***
5. *Development of drugs, medical products and traditional medicines.*

Implementation of this regulation has consequences that practicing pharmacists should be nationally registered. The Indonesian government established *Komite Farmasi Nasional* – KFN (National Pharmacy Committee). The registration should be renewed every 5 years; Certificate of competency would be required for the registration. *Ikatan Apoteker Indonesia (ISFI) was changed to be IAI* (Indonesian Pharmacists Association) that has authority to publish Certificate of competency, renew the standards of competency for pharmacists (2011) which Clinical Pharmacy was included, develop a system for competency assessment with examination and portofolio (since 2014) and provide opportunity for Continuing Professional Development (CPD).

The Clinical Pharmacy Practice was supported by the Government with establishment of Standards of Pharmaceutical Care that supports Clinical Pharmacy Practice is as follows:

1. Health Ministerial Regulation No. 30 Year 2014
  - a) The Standards of Pharmaceutical Care at the Primary Health Centre,
2. Health Ministerial Regulation No. 35 Year 2014
  - a) The Standards of Pharmaceutical Care in Pharmacy,
3. Health Ministerial Regulation No. 58 Year 2014
  - a) The Standard of Pharmaceutical Care in Hospitals.

In 2015 there are 2,456 hospitals with 1,925 General Hospitals and 531 Special Hospitals. There are 1,321 Accredited Hospitals. 9,692 Primary Health Centres consist of 3,363 primary health centres with inpatient facilities and 6,329 primary health centres without inpatient facilities and 21,058 Pharmacies/*apotek* with 53,092 registered pharmacists: 12,042 men and 41,050 women.

With practice not fully conformed to the Standards, there were approximately 46% of Government Hospitals and Primary Health Centres which complied with pharmaceutical Care Standard by 2014.

### 3.4 Clinical Pharmacy in Practice: Challenges

There are some challenges that face clinical pharmacy development in Indonesia include Pharmacists-physician-patient relations/interactions, pharmacist factors: knowledge and competence, dual employment, implementation of SOP, Physician factors: awareness and trust of pharmacists, Patient factors: awareness and trust of pharmacists, Organisational context of the pharmacy/hospital/other facilities, pharmacist time/availability, adequate staff resources, availability of resources to provide services – e.g. counseling space, SOP, External environment and Relevance of pharmacy education to the needs of practice, organisation of roles between health professionals, remuneration, assistance (from IAI), policy (the Government).

### 3.5 Clinical Pharmacy in Practice: Future Recommendations

Future recommendation is followed by Integration of clinical pharmacy services into healthcare system under JKN; Establishment of appropriate remuneration; Improving professional environment and infrastructure, Synchronising education (and CPD/CPE) to practice needs, IT systems for dispensing and patient medication records, Adequate staff, Policy, professional standards, procedures and other materials; and Research – to support evidence based on practice.

## 4. The Role of Pharmacy Higher Education

### 4.1 Pharmacy Education: Past (<2000s)

The development of pharmacy of higher education can be seen from how The Ministry of Education regulates pharmacy education. A qualified pharmacist is required to complete the pharmacy undergraduate course (S1) followed by a year pre-registration training (Apothecary). In 2000 there were 16 faculties of pharmacy with 8 of them were private and the pharmacy curriculum was heavily based towards pharmaceuticals, pharmacognosy and laboratory work.

### 4.2 Pharmacy Education: Present (2000s)

The number of pharmacy colleges/faculties grows fascinating. There were 121 colleges/faculties which offered undergraduate courses (S1) in 2015 from only 16 in 2000. 78 colleges/faculties were accredited – 52 of them were private. 29 colleges/faculties offered pre-registration course (Apothecary) in 2015.

#### 4.2.1 Clinical Pharmacy Curriculum

In 2000, *Asosiasi Perguruan Tinggi Farmasi Indonesia* – APTFI (Indonesian Association of Higher Education of Pharmacy) was established. In 2003, Faculty of Pharmacy, University of Surabaya, included ‘clinical pharmacy’ in its Pharmacy undergraduate (S1) curricula. In 2008, APTFI developed a national pharmacy curricula which includes **pharmacotherapy**. At the current time, almost all pharmacy colleges/faculties have ‘clinical pharmacy’ subjects in their curriculum (S1).

#### 4.2.2 Indonesian National Qualification Framework (INQF).

Government Regulation No. 08 Year 2012 established the Indonesian National Qualifications Framework (KKNI/INQF) to be used in the preparation of the learning outcomes of graduates from each level of education nationwide. The aims are to make the level of competence and qualifications that can reconcile, equalize, and integrate the fields of education and job training as well as work experience in order to award the work, in accordance to the recognition of the competence of employment structure in various sectors.

#### 4.2.3 Regulation

Regulations that support Pharmacist Education:

1. Law No. 20 Year 2003 on National Education System.
2. Law No. 14 Year 2005 on Teachers and Lecturers.
3. Law No. 36 Year 2009 on Health.
4. Government Regulation No. 19 Year 2005 on National Education Standards.
5. Government Regulation No. 51 Year 2009 on Pharmaceutical Works.
6. Government Regulation No. 17 Year 2010 on Education Management and Implementation.
7. Apothecary Education Standards issued by Indonesian Association of Pharmacy College (APTFI) and Work Practice Standards of Professional Pharmacists Indonesia issued in 2008.
8. Apothecary Education Standard requires 2 semesters with at least 28 credits and 40 credits maximum.

#### 5. Conclusion

1. The clinical pharmacy practice in Indonesia is heading in the right track – supported by appropriate policy and standardised pharmacy education.
2. More collaboration between policy makers, educational institutions, professional organisations and practitioners would be required to integrate pharmacists within healthcare team to ensure quality use of medicines and patient safety.

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