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"Development of Health, Science and
Technology Innovations in Pandemic Era"



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**“Development of health, science and technology
innovations in pandemic era”**



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Indonesia**

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**“Development Health, Science and Technology Innovations in
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Conference Programme
The 2nd of International Conference Health, Science and Technology
Universitas Duta Bangsa Surakarta, Indonesia
April, 6th 2021

NO	TIME (GMT +7)	EVENT
1	07.55 – 08.00	Opening Ceremony
2	08.00 – 08.10	National Anthem of Republic Indonesia
3	08.10 – 08.15	Mars and Hymne of Universitas Duta Bangsa Surakarta
4	08.15 – 08.20	Prayer
5	08.20 – 08.25	Report of the Chairman of the 2nd ICOHETECH Committee 2021
6	08.25 – 08.30	Honorary Speech and Opening Conference of Rector Universitas Duta Bangsa Surakarta
7	08.30 – 09.15	Keynote Speaker: Prof. Dr. Ir. Muhammad Zainuri, DEA Chairman of LLDIKTI VI Jawa Tengah, Indonesia <i>Topic: Educational and Scientific innovations in the pandemic era</i>
8	09.15 – 10.00	Keynote Speaker: Nik Azliza bt Nik Ariffin, PhD University Technology MARA (UiTM), Malaysia <i>Topic: Health innovations in the pandemic era</i>
9	10.00 – 10.45	Keynote Speaker: Dr. Atif Ali Gill University of Sahiwal, Pakistan <i>Topic: Technology innovations in the pandemic era</i>
10	10.45 – 11.45	Discussion Session
11	11.45 – 12.45	Break
12	12.45 – 14.45	Parallel Session: Presenter
13	14.45 – 15.00	Closing of Parallel Session

Proceeding of The 2nd International Conference of Health, Science and Technology

“Development Health, Science and Technology Innovations in Pandemic Era”

Preface

MOVING, MOVING, MOVING

MOVING is our spirit, Universitas Duta Bangsa Surakarta who means Mandiri (independence), Inovatif (Innovation and Creative), Visioner (Visionary), Beriman (faithfulness to God), and Global Oriented.

It gives me great pleasure to welcome you all to Solo Indonesia, the spirit of Java, Java Cultural center in this country. This day is the second time Universitas Duta Bangsa Surakarta has had the International Conference of Health, Science and Technology (ICOHETECH). The first was in 2019 on the occasion of the 1st Dies Natalies.

Indeed, this conference was slightly delayed, which we know was caused by the Covid-19 pandemic last year and has not ended until now. So let's always be grateful for our health, to be able to meet at this conference even though virtually. The theme of ICOHETECH this year is very interesting, development of health, science, and technology innovations in the pandemic era, which motivates all of us to keep the spirit of innovation with current conditions that are changing increasingly extreme, complex, and of course the challenges future will get tougher.

I would like to thank all keynote speakers, presenters, participants who totally from 7 countries so that today's conference feels very special. Furthermore, also several parties have provided support such as BTN Syariah, BPD Jateng Syariah, and Solopos. I believe that we all have the spirit to innovate, strive, work harder to develop knowledge in the fields of health, science, and technology to create a better life. I think this is the main aim of this meeting. Thus, let's keep join ICOHETECH by participating again next year.

Dr. Singgih Purnomo, MM
Rector of Universitas Duta Bangsa Surakarta

Proceeding of The 2nd International Conference of Health, Science and Technology

“Development Health, Science and Technology Innovations in Pandemic Era”

Preface

Welcome to the second International Conference of Health, Science, and Technology (ICOHETECH), April 2021. Even though the Covid-19 pandemic is occurring in the past year, science development activities must not stop here. Several obstacles arise, we believe that it will not deter all of us from innovating. Therefore, this year's ICOHETECH virtually carries the theme of developing health, science, and technology innovations in the pandemic era.

We would like to take this opportunity to thank all those who have participated and made this conference a success. This second year, we are very happy to have 3 keynote speakers, published 87 papers, and was attended by approximately 600 participants from 7 countries. Specially thanks also go to Universitas Duta Bangsa Surakarta for all the support that has been given at this conference. Not to forget, I would like to thank all of the ICOHETECH 2021 committees for their hard work and cooperation.

Finally, we thank you once again and have a nice meeting at ICOHETECH next year.

Best Regards,

Riska Rosita, SKM., MPH
Chair of the 2nd ICOHETECH's Committee

TABLE OF CONTENT

	Pages
<p><i>Metagenomic Sequencing of P30-gene-positive Using MinION Sequencer for Apicomplexan Species Identification</i> Dela Ria Nesti, Ahmad Baidlowi, Lucky Ronald Runtuwene, Ari Indrawati, Wayan Tunas Artama , Yutaka Suzuki</p>	1 – 5
<p><i>Influential Factors on Preventive Behaviours of Risk Factors for Adults' Metabolic Syndrome in Ponorogo, East Java, Indonesia</i> Edy Bachrun, Bhisma Murti, Mahendra Wijaya, Endang Sutisna Sulaeman</p>	6 – 9
<p><i>Accuracy Code Chronic Obstructive Pulmonary Disease</i> Linda Widyaningrum, Astri Sri Wariyanti, Sauha Lulumanin, Lutfi Maratin</p>	10 – 12
<p><i>Literature Review: Antioxidant Test of Basil Leaves (Ocimum Sanctum)</i> Noka Riyani, Kusumaningtyas Siwi Artini, Tatiana Siska Wardani</p>	13 – 15
<p><i>Correlation Between the Knowledge Level About Eating Patterns and The Incidence of Anemia in Adolescents During Covid-19 Pandemic</i> Anik Sulistiyanti, Fany Dwi Yulianti, Yulia Nur Khayati</p>	16 – 19
<p><i>Patient Clinical Data Integration in Integrated Electronic Medical Record System using System Development Life Cycle (SDLC)</i> Rara Nur Salsabila, Yunita Wisda Tumarta Arif, Puguh Ika Listyorini, Ummi Athiyah</p>	20 – 25
<p><i>Literature Review: Hand sanitizer formulation from extract and essential oil of betel leaf (Piper betle Linn.) As well as antibacterial activity test</i> Weri veranita, Kusumaningtyas Siwi Artini, Danang Raharjo, Ferry Effendi</p>	26 – 27
<p><i>The Workload of Health Workers in The Medical Record Unit During the Covid-19 Pandemic</i> Riska Rosita, Devi Prasetyo Ramadani, Diyan Nurhaini, Ratih Kusumaningtyas, Indra Agung Yudistiro, Harjanti</p>	28 – 30
<p><i>Literature Review: The Potencial Effect of Dandang Gendis Leave (Clinacanthus nutans Lindau)</i> Kusumaningtyas Siwi Artini, Weri Veranita, Tatiana Siska Wardani</p>	31 – 33
<p><i>Factors Causing Anemia in Women of Reproductive Age</i> Putri Diana, Nur Hikmah</p>	34 – 35
<p><i>Quantitative Analysis of Emergency Medical Record Documents Based on Mirm Standard 13.1.1 Snars Issue 1 in RSJD Dr. Arif Zainudin Surakarta</i> Nabilatul Fanny, Liss Dyah Dewi Arini, Oliva Virvizat Prasastin, Yogheswaran Gopalan, Meita Dwi Purwanri</p>	36 – 39

<i>Barcode Based Filing Information System in Hospital</i>	40 – 44
Agung Suryadi, Imam Hizbullah, Diana Agustin Fibriyani, Febriza Rose Diagnostikasari	
<i>Antioxidant Activity of Ethanol Extract of Secang Wood (Caesalpinia sappan L.), Gotu Kola (Centella asiatica L.), and Their Combinations with DPPH Assay</i>	45 – 49
Binti Maulina Putri, Sugiarto, Brian Wasita, Ratih Puspita Febrinasari	
<i>Coding Accuracy Analysis of INA-CBG's Cause of Negative Claims at Dr. Moewardi Hospital</i>	50 - 53
Yeni Tri Utami, Nabilatul Fanny, Devi Pramita Sari	
<i>Impact on Mental Health due to Covid-19 Pandemic among Bangladeshi International Students in Malaysia: a Cross-Sectional Study</i>	54 – 58
Syed Nazmul Huda, Farhana Begum, SK Mahafujur Rahaman, Mst Airen Akter, Mohammad Samiul Islam, Hasin Tanjim	
<i>Depression in Woman Breast Cancer: Literature Review</i>	59 – 61
Endrat Kartiko Utomo, Totok Wahyudi, Sinta Dwi Anggraini, Sitti Rahma Soleman	
<i>Innovation in hospital: Learning from Malcolm Baldrige Awards latest winners in healthcare</i>	62 – 64
Budi Harsanto	
<i>Increased Levels of Fermented Soy Milk Amino Acids and Effectiveness Helping Reduce Uric Acid Serum in Male White Rats</i>	65 – 67
Danang Raharjo, Veranita Weri, Wardani tatiana siska	
<i>Effect of Consumption Chocolate (Theobroma Cacao L) on Cholesterol Levels in Patients With Hypercholesterolemia (study in the UPTD Puskesmas Jatiroto)</i>	68 – 71
Muzaroah Ermawati Ulkhasanah, Agung Widiastuti, Mita Agustina, Tsuluts Taufiq Hidayat, Mufarohah	
<i>The Relationship between Work Motivation and the Performance of Hospital Administration Officers in the Covid-19 Pandemic Era</i>	72 – 73
Devi Pramita Sari, Yeni Tri Utami, Ananda Nur Khasyanah	
<i>Workload of Medical Record Service in Pandemic Covid-19</i>	74 – 76
Sri Wahyuningsih Nugraheni, Erna Zakiyah, Mamik Farida	
<i>Integrated Management Childhood Illness (IMCI) in Primary Health Care: Literature Review</i>	77 – 79
Totok Wahyudi, Endrat Kartiko Utomo, Fakhrudin Nasrul Sani, Susi Lastianingsih, Panji Azali, Diva Agustiningrum	

<i>Oxytocin Massage Increase Milk Production During Breastfeeding</i> Siti Farida, Etik Sulistyorini, Radettya Bella Retnaning Pangestu	80 – 82
<i>Factors Affecting Nurse Fatigue During Covid-19 Pandemi (Nurse Case Study in Surakarta)</i> Musta'in, Dwi Lestari Mukti Palupi, Tri Yuniarti, Erna Kusumawati, Muchamad Syaichul Anam	83 – 86
<i>Effect of Pitch Thread Combination of Dental Implant on Fatigue Safety and Life Performance</i> Danang Yudistiro, Yung-Chang Cheng	87 – 90
<i>Antioxidant peel off mask formulation of tamarind seeds ethanol extract</i> Putri Djatmiko Marchia Afifah, Veranita Weri, Wardani Siska Tatiana	91 – 93
<i>Combination of Tea-Ginger-Mint Extract Increase the Elderly Immunity</i> Darah Ifalahma, Wan Azman Wan Ismail, Isna Dwi Astuti, Anita Dwi Septiarini, Melati Artika Wulansari	94 – 96
<i>Existence Test Of Escherichia Coli and Pseudomonas Aeruginosa Bacteria in Packaging Drinking Water in Cemani Village, Sukoharjo Regency</i> Nuraini Putri Rahmawati, Wardani Siska Tatiana, Veranita Weri, Veranita Weri	97 – 99
<i>Disparities in hospital cost and INA-CBGs tariff with unit cost analysis of inpatient services</i> Warsi Maryati, Muhammad Faiz Othman, Siti Musyarofah, Puguh Ika Listyorini, Fhahrul Dwi Aryanti, Miftakhul Jannah	100 – 104
<i>Designing a Completeness Medical Record Document Website Using Waterfall Model</i> Anisa Rahayu, Lidia Putri Fitriana, Nurhayati, Ike Yunia Pasa	105 – 108
<i>Literature Study of Three Plant Formulations with Anti-Candida Albicans Activity in Feminine Liquid Soap Preparations</i> Tatiana Siska Wardani, Kusumaningtyas Siwi Artini, Ilham Latansa	109 – 112
<i>Foot Physical Activity Can Reduce Blood Pressure in Hypertension to Eldery</i> Praditya G, Kartikasari A, Widyastuti Y, Rahmasari I	113 – 115
<i>Range of Motion (ROM) Early Affecting the Ability of Activities Daily Living (ADL) Patients Post Operation Femur Fracture</i> Ikrima Rahmasari, Y Gopalan, Agustin T, Francisca W, Maharani MK	116 – 119

- Correlation of Mother's Knowledge on Stimulation with Toddler's Gross Motor Development at The Age of 3-5 Years*** 120 – 123
Devania Angelita, Ana Yuliana, Darah Ifalahma
- Hospital Patient Loyalty: In terms of Brand Image, Service Quality, Patient Satisfaction, and Trust*** 124 – 127
Puguh Ika Listyorini, Warsi Maryati, Sylvia Anjani
- Tests for the antibacterial and anti-inflammatory potential of the Asem Tengger plant (Radicula armoracia Robinson) obtained from the ethnomedicine study in the Tengger tribe*** 128 – 134
Yaya Sulthon Aziz, Rony Setianto, Tatiana Siska Wardani, Nurul Nurhayati, Belinda Arbitya Dewi
- Relationship of Accreditation Status with Completeness of Medical Record Documents for Inpatients at the Hospital*** 135 – 138
Puji Lestari, Amalia Devi Fitriatama Arbi, Ismini Putri Robbaniyah , Devi Pramita Sari
- The Effect Helly Syndrome on Neonatal Asphyxia in Margono Soekarjo Hospital Purwokerto*** 139 – 142
Sumarni, Fitria Prabandari, Dyah Puji Astuti
- Relationship of Patient Characteristics and Revisit of Outdoor Patients of Coronary Heart Disease in Hospitals*** 143 – 147
Desinta Aisyah Nur Dwi Azizah, Alvira Lendriana Scarletta, Arifa Putri Rismanti, Nabilatul Fanny
- The Relationship Between the Role of Health Workers, Family Support, Social Support with Family Caregiver in Caring People with Mental Disorders in Kediri Regency*** 148 – 150
Agustin Widyowati, Bhisma Murti, Aris Sudiyanto, Suminah
- Emotional Support for Early Mobilization on day 0 Until 4 in Patient Post Operation Total Knee Replacement*** 151 – 153
Agung Widiastuti, Muzaroah Ermawati Ulkhasanah, Amik Muladi, Niya Nurmawati, Muhammad Syaiful Anam
- Dry Cupping Has Effect on The Reduction of The Pain Scale in Administrative with Uric Acid*** 154 – 157
Fakhrudin Nasrul Sani, Totok Wahyudi, Mellia Silvy Irdianty, Diva Agustiningrum, Putri Alya Rifqi, Riska Putri Sejati
- Review of Completeness of General Road Care Form in The Poli MTBS UPT Puskesmas Ngoresan in 2019*** 158 – 162
Ellen Nur Fauziah, Liss Dyah Dewi Arini, Liliek Prasetijaningsih, Ani Nur Fauziah

<i>Antibacterial Activities of Extract and Fraction from Methanol Extract of Manggis Leaves (Garcinia mangostana) on Bacteria Causing Diabetic Ulcer</i>	163 – 167
Rosalina V, Mahendra R, Erikania S	
<i>Clean and Healthy Living Behavior (PHBS) Strategy to Prevent the Spread of the Covid-19 Virus</i>	168 – 169
Ana Fitia Rahmawati, Indah Kristantini	
<i>Application of the Apriori Algorithm and FP-Growth to find out the Association Rule between Gender, Education level on wages of SMEs workers in Palembang City</i>	170 – 173
Antonius Wahyu Sudrajat, Idham Cholid, Ermatita	
<i>Automated Moist Control for Mushroom Production Information System with Mobile-Based SMS Notification</i>	174 – 178
Domingo V. Origines JR, Benito Digit	
<i>Analysis of The Implementation of Web-Based Customer Relationship Management in Optimizing SME Services in Indonesia</i>	179 – 181
Liana Trihardianingsih, Hanifah Permatasari	
<i>Policy of Information and Communication Technologies to Promote the Formation of Future Business Models</i>	182 – 189
Velinda Febriana, Eko Purwanto	
<i>Clinical Decision Support System for Mapping of Blood Pressure and Heart Rate</i>	190 – 192
Sri Sumarlinda, Wiji Lestari	
<i>KM Maturity Assessment of Telecommunication Company in Indonesia using G-KMMM</i>	193 – 198
Hanif Sudira, Putra Tresna Linge, Tsaqif Alfatan Nugraha, Damayanti Elisabeth, Sofian Lusa, Dana Indra Sensuse	
<i>Implementation of Renewable Energy-based Public Wireless Internet Infrastructure in Rural Indonesia</i>	199 – 202
Nurchim, Wijiyanto	
<i>ePortal Store: a Web Business Model catalyst</i>	203 – 210
Domingo V. Origines JR. ,It.D., Zandro P. Ibanez, It.D	
<i>E-Counseling System Mental Health to Increase Self Hope During the Covid-19 Pandemic</i>	211 – 213
Sukma Rahmawati, Eko Purwanto	
<i>Expert System Detecting Symptoms of Game Addiction with The Forward Chaining Method and Certainty Factor</i>	214 – 218
Muhammad Mujib Al Khafid, Sri Sumarlinda, Rina Arum Prastyanti	

<i>Internet of Things Based Plant Watering System Design</i>	219 – 221
Afu Ichsan Pradana, Harsanto, Retna Dewi Lestari, Rudi Susanto, Arif Wicaksono Septyanto	
<i>Predicting Academic Performance in Blended Learning by Using Data Mining Classification Techniques</i>	222 – 226
Dafid, Ermatita	
<i>The Impact of Knowledge Management in Human Resources Department: A Systematic Literature Review</i>	227 – 230
Louis Dwysevrey Ompusunggu, Dana Indra Sensuse, Yolanda Yosephine Zebua	
<i>Analysis of Accuracy of The Use of UNI-T UTi165K Thermal Camera to Safeguard the Spread of Covid-19 in The New Normal Era at the Polmed Telecommunication Laboratory Based on IoT (Internet of Things)</i>	231 – 234
Muhammad Rusdi, Wiwinta Sutrisno	
<i>Integrated Web-Based Learning Approach and The Students' Academic Achievement</i>	235 – 240
Meliza P. Alo, Domingo V. Origines JR.	
<i>Implementation of Artificial Intelligence and Big Data to Overcome Covid-19 Pandemic</i>	241 – 243
Christopher Jody Widiyono, Joni Maulindar	
<i>E-Commerce Web Design Analysis for Computer Sales</i>	244 – 247
Agustina Srirahayu, Difa Alma Fionita	
<i>Rule Based System in E-Commerce Dolanan Bocah Pinter</i>	248 – 251
Intan Oktaviani, Vihi Atina	
<i>Digital Marketing As a Means of Developing Small And Medium Enterprises Businesses In The Klaten City</i>	252 – 254
Putri Kusumawati, Agus Suyatno, Lyly Katniaty	
<i>Detection of Covid-19 on X-Ray Images Using a Deep Learning Convolution Neural Network</i>	255 – 259
Sri Widodo, Anik Sulistiyanti, Indra Agung Yudistira, Maryatun	
<i>Implementation Knowledge Management for Knowing the Factors That Have Influenced Income for Traditional Retail</i>	260 – 263
Dien Novita, Ermatita	
<i>Student Communication Pattern in Learning Process Through Social Media in Covid 19 Pandemic</i>	264 – 268
Yesiana Vianingrum, Ratini Setyowati	

<i>Review of Refocusing and Reallocation of The Local Government Budget in Handling Covid-19 in Indonesia</i>	269 – 273
Antin Okfitasari, Wulan Suci Rachmadani, Samsul Rosadi, Indah Puji Lestari, Indra Hastuti	
<i>User Behavior Intention Towards E-Hailing Applications</i>	274 – 278
Indah Wahyu Utami, Satinder Kumar, Anisha Kannu, Apif Sofyan, Fioga Zahra Fernando	
<i>Empowerment Strategy of Kandri Tourism Village Through Technology Information Media</i>	279 – 283
Umi Hanifah, Bayu Tri cahya, Miftah Nurul Khaqiqi, Fitri Handayani	
<i>Correlation of Taxpayer Awareness, Rase of Payment, and Quality of Service with Taxpayer Compliance PKB (Pajak Kendaraan Bermotor) in SAMSAT Office, Klaten District</i>	284 – 288
Erna Chotidjah Suhatmi, Agus Suyatno, Retna Dewi Lestari	
<i>Role of Taxes Save The Business Affected by Covid 19 Pandemi in Indonesia</i>	289 – 292
Maharani Chikita Angelina, Antin Okfitasari, Safitri Nur	
<i>Waste Management System from The Remaining Machining Production at PT Astra Honda Motor Plant 1 Sunter North Jakarta</i>	293 – 295
Arham Iqbal Fatama, Indah Wahyu Utami, Arry Hutomo, Maaz Ud Din, Tri Wisudawati	
<i>Implementation IBS Core Banking System with UTAUT Model to Understand Behavioral Intention</i>	296 – 300
Saryadi, Murni Hastuti, Sundari, Erma Nurhayati Firdaus	
<i>Understanding on Online Assessments for EFL Learning During Covid-19 Pandemic</i>	301 – 306
Ratini Setyowati, Sopingi, Indra Hastuti	
<i>Identification of Beef Freshness Using Smart Labels Based on Anthocyanin Extract of Purple Cabbage (Brassica Oleracea Var. Capitata L.)</i>	307 – 310
Tommy Eka Chandra Firmansyah, Andrew Setiawan Rusdianto, Winda Amilia	
<i>The Effect of Gain-Loss Framing Information on Risk Attitude during Coronavirus Disease (COVID-19) Pandemic</i>	311 – 317
Muhamad Adhitya Nugroho, Rini Dharmastiti, Hilya Mudrika Arini	
<i>Spare Part Warehouse Management Analysis Using 5S Approach and FIFO System</i>	318 – 322
Mila Faila Sufa, Makruf Kausar Mulyana	

- LCGC Car Demand Forecast Analysis with Two Forecasting Method (case studies of consumer in Indonesia)*** 323 – 327
Tri Wisudawati, Indah Wahyu Utami, Retna Dewi Lestari, Wahyu Adhi Saputro
- Smart Packaging of Temperature and Light Susceptible Product with Purple Sweet Potato (*Ipomoea batatas L.*) Indicator Label*** 328 – 331
Desita Wirda Ramadhan, Andrew Setiawan Rusdianto
- The Role of Social Media Instagram and Identification of Factors in The Revisit Intention to Gunung Api Purba Nglanggeran*** 332 – 336
Kumaratih Kumaratunga Dewi, Aditya Solichin, Dhea Ayu Resky Amalia, Tri Wisudawati, Wahyu Adhi Saputro
- Use of Personal Protective Equipment (Gloves) Can Reduce the Risk of Damage to Skin Integrity in Fish Packaging Workers*** 337 – 340
Zaini S, Clariesta W, Handoko I, Widiastuti A
- Effectiveness of Virtual Reality based-exercise to Increase Physical Activity on Older Adult with Sedentary Lifestyle during COVID-19 Pandemic: a Literature Review*** 341 – 345
Ayunda Puteri Rizanti, Lutfian
- The Potential of Local Garlic (*Allium sativum L.*) to Become a Flavor Enhancer Through Lacto-Fermented Garlic*** 346 – 351
Firda Ainia Adha, Andrew Setiawan Rusdianto, Noer Novijanto, Maria Belgis
- Code Mixing and Slang as The Effect the Development of Technology in Gameplay*** 352 – 353
Almira Rahma Syastuti, Damay Rahmawati
- Legal Protection for Victims of Crime Actions of Illegal Access to Personal Information*** 354 – 359
Rina Arum Prastyanti, S. Andi Sutrasno, Devy Setyani
- Criminal Law Enforcement of Phising Attacks on Online Banking Services*** 360 – 363
Aryono, Jaco Barkhuizen
- Factors Affecting in Choosing a Study Program at Duta Bangsa Surakarta University*** 364 – 366
Arifah Nur Dwiyantri, Singgih Purnomo, Rayhan Gunaningrat

Patient Clinical Data Integration in Integrated Electronic Medical Record System using System Development Life Cycle (SDLC)

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Abstract— Clinic is a health service facility that provides individual services, both providing basic and/or specialized medical services. The processing of medical record documents for outpatient services at the Al-Ikhlas Clinic, Sragen, is still carried out conventionally, starting from registration to storing documents. Often there is duplication, inaccuracy in recording, and presentation of reports that are not in accordance with the services at the service. The purpose of this study was to create medical records for inter-clinic patient data interventions with the development life cycle system development (SDLC) method so that it could provide benefits for officers in processing clinical patient data. This type of research is qualitative in nature using the SDLC system development method carried out by selecting projects, initiating and planning projects, analysis, design, implementation, and maintenance. The subjects in this study were medical record officers and doctors, while the object under study included recording and processing patient medical record data. The development of the SDLC system is the main instrument to replace the old system as a whole or to improve the existing system, and the data sources used are primary data and secondary data. Electronic Medical Records built using the PHP programming language and MySQL database, where this system has the advantage of being able to speed up the registration process and data processing of computerized patient medical records as well as the ease of staff in making reports to clinic leaders. Electronic Medical Records of Al-Ikhlas Sragen Clinic can produce information in the form of patient data reports, diagnosis reports, action data reports, drug data reports, officer data reports, doctor data reports, polyclinic data reports, examination data reports, and patient registration data reports.

Keywords—*electronic medical record, SDLC, outpatient, website based*

I. INTRODUCTION

Clinic is a health service facility that provides individual health services that provide basic and/or specialized medical services, organized by more than one type of health worker-led by a medical staff. Clinics with quality services need to be supported by good medical records. According to Permenkes RI No. 269 / Menkes / PER / III / 2008 Medical Record is a file containing notes and documents about patient identity, examination, treatment, actions, and other services to patients. Medical record management is carried out by the medical records department, which is in charge of managing medical

record documents. Medical records must be written, complete and clear as well as electronically. According to Sudra (2013), Electronic medical records are medical records that are stored electronically whose contents include personal data, demographic data, social data, clinical/medical data, and various clinical events during the service process from various data sources (multimedia) and have an active function. to provide support for decision-making. Electronic medical records allow sharing of information from various sources in various forms to be stored, processed, communicated, and retrieved easily in the original or processed form, things like this can be used to manage general practitioner-patient data obtained from general practitioner-patient medical records.

Al-Ikhlas Clinic in Sragen is one of the main clinics in Ngrampal District, Sragen, Indonesia. Implementation of medical records at the Al-Ikhlas Clinic in Sragen was done manually which resulted in less effective and efficient data processing, such as: (1) duplication of documents, (2) inaccuracy of records, and (3) presentation of reports that were not as needed.

Based on this case, it is necessary to conduct a system or software development, namely the use of electronic medical records with the development method of systems development life cycle (SDLC). According to Prof. Dr. Sri Mulyani, AK., CA. (2017) SDLC is a logical process used by a systems analyst to develop an information system that involves requirements, validation, training, and system owners. SDLC has many functions, including as a means of communication between the development team and stakeholders. SDLC also serves to divide clear roles and responsibilities between developers, designers, business analysts, and project managers. Researchers will develop this solution, initially the medical records are carried out manually into a computerized system, the development of the system is expected to be able to process data quickly, accurately, and relevant so that it can provide optimal health services.

II. METHOD

This type of research is intended to create a web-based outpatient electronic medical record information system. The research used is qualitative in nature with the SDLC system development method which is carried out by means of project identification and selection, project initiation and planning,

analysis, design, implementation, and maintenance. The subjects in this study were medical record officers and doctors, while the object under study included recording and processing patient medical record data. The development of the SDLC system is the main instrument to replace the old system as a whole or to improve the existing system, and the data sources used are primary data and secondary data.

III. RESULT

A. Clinical Overview

Based on the Law of the Republic of Indonesia number 36 of 2009. Health service facilities are tools and/or places used to carry out promotional, preventive, curative, and rehabilitative health service efforts carried out by the government, local governments, and/or the community. Clinic is a health service facility that provides individual health services that provide basic and/or specialized medical services, organized by more than one type of health worker-led by a medical staff.

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B. SDLC System Development

The systems development process is divided into a number of different sequences. But all of them will refer to standard processes namely analysis, design, implementation and maintenance. In its development, these standard processes are outlined in a method known as the System Development Life Cycle (SDLC) which is a general methodology in system development that marks the progress of analysis and design efforts. The system development process has a number of sequences. The system development process has a number of sequences. Based on the sequence of these processes, it is poured into a System Development Life Cycle (SDLC) method. SDLC includes the following phases:

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At this stage several things must be done, including identifying potential projects, classifying and ranking projects, selecting projects to develop. At this stage, the researcher identified the flow of the patient's examination at the Al-Ikhlas Sragen Clinic and the problems at the Al-Ikhlas Sragen Clinic. Al-Ikhlas Clinic in Sragen provides outpatient health services. At this time, the outpatient registration unit at the Al-Ikhlas Clinic, Sragen, is still carried out conventionally even though there is already a computer, namely by using Microsoft Excel, so there are various obstacles and weaknesses in presenting information, including:

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At this stage, a potential information system project is described and arguments for proceeding with the project are presented. A well-prepared work plan is also drawn up to carry out the other stages. At this stage, the researcher determines in detail the work plan that must be done, the duration required for each stage, human resources, software, hardware, and financial estimation..

3) System Initiation

Starting from the patient coming to the Al-Ikhlas clinic, whether the patient made a new visit or not, if not then asked whether to bring the KIB, if not bringing the KIB then look for the RM number in the database, if the patient is a new visit then input the patient data then make the KIB. After carrying out the registration process, then continue to take the DRM on the shelf to be submitted to the police for further examination at the pharmacy, a report is made, the patient goes home.

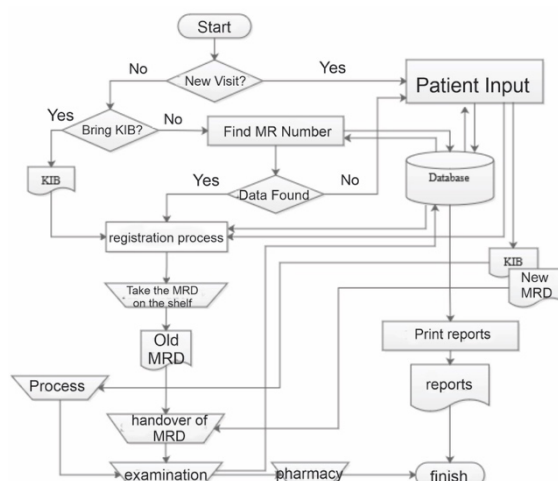


Figure 1. The System Built in the Al-Ikhlas Clinic, Sragen

4) System Design

System design is the planning of the entire system design consisting of Data Flow Diagrams (DFD), database design, input design, output design, operation, and screens. The top-level in the tiered diagram above is the outpatient electronic

medical record. Level 0 on the tiered diagram includes master data processing, data processing, and report processing. Level 1 in the tiered diagram has three parts, namely in the processing of master data, there are patient master data, officer master data, diagnosis master data, action data master, drug master data, polyclinic master data, doctor master data. In data

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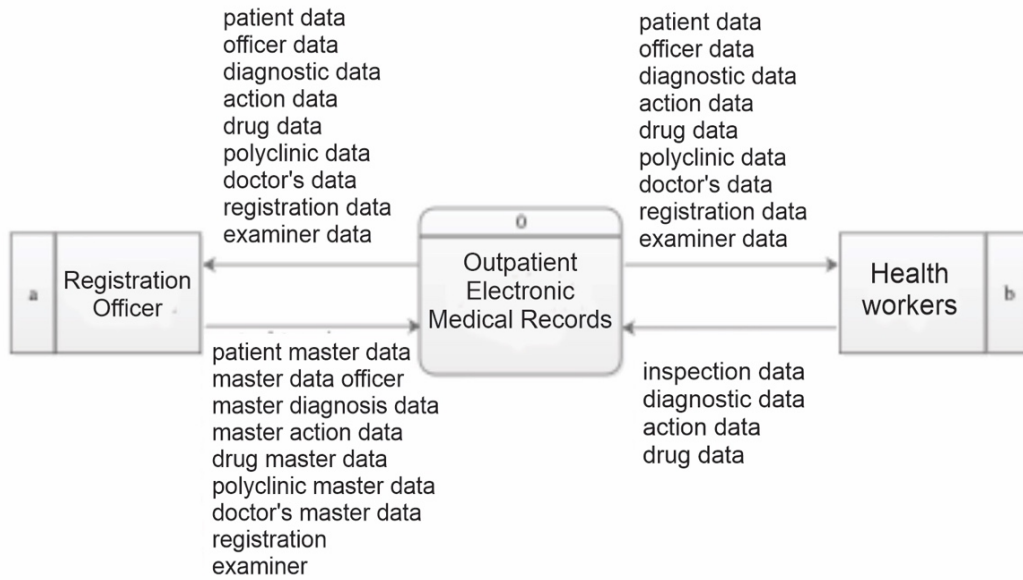


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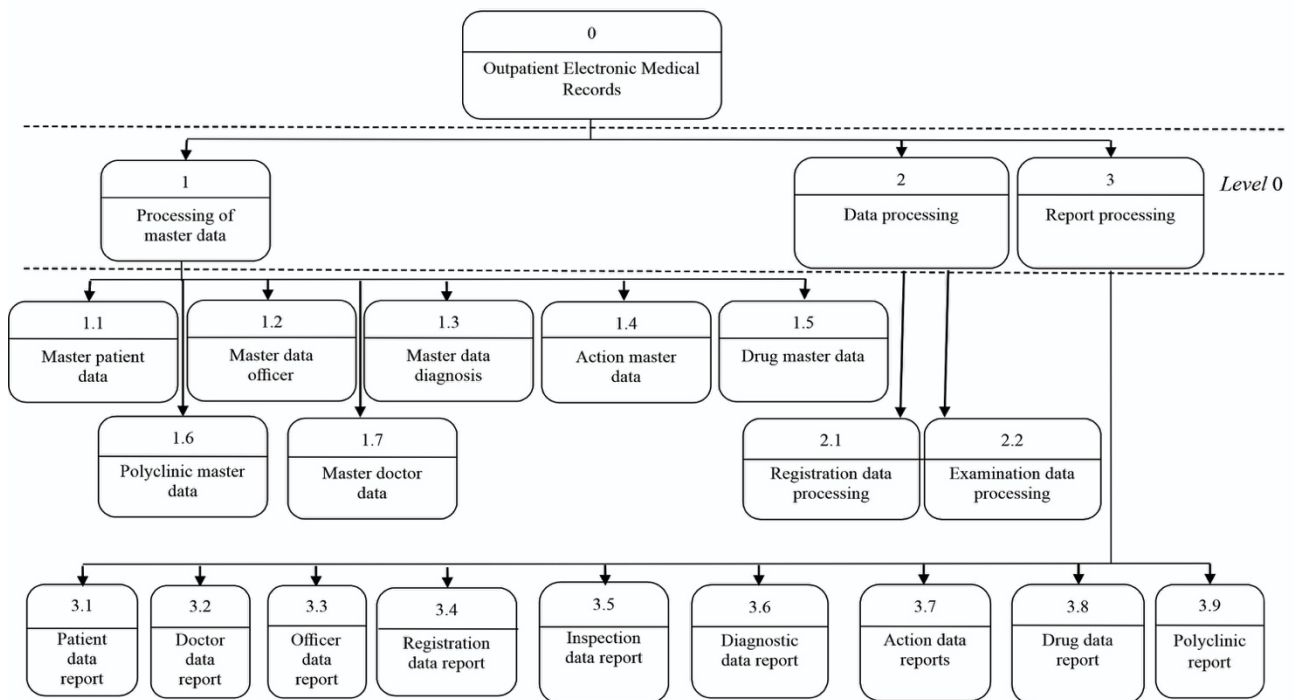


Figure 3. Outpatient Electronic Medical Record Tiered Diagram

5) Analysis

This stage describes the running system, problems, defined opportunities, and general recommendations for how to fix, improve, or general recommendations for how to repair, enhance or replace the system that is currently running are proposed. The main objective of the analysis phase is to understand and document the business needs and process

requirements of the new system. The analysis carried out at the Al-Ikhlas Sragen Clinic is about the problem of conventional medical records, then looking for solutions to solve the problems of conventional medical records that are easily lost and damaged by replacing them using electronic medical records.

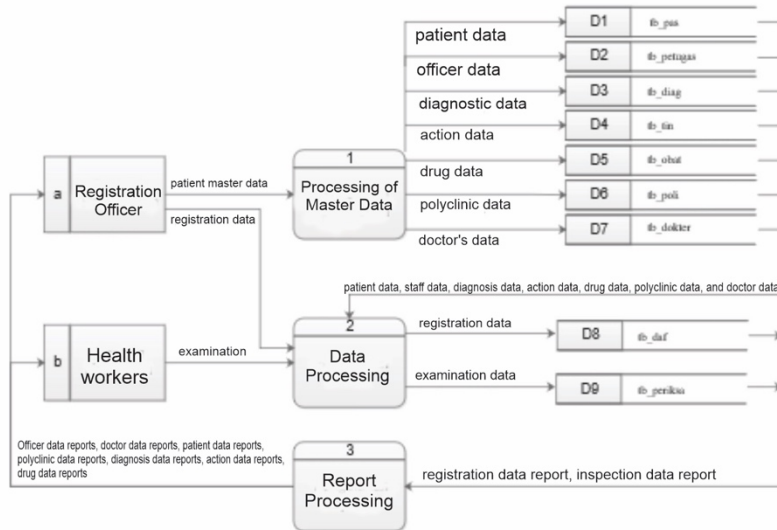


Figure 4. DFD Level 0 Outpatient Electronic Medical Records at the Clinic

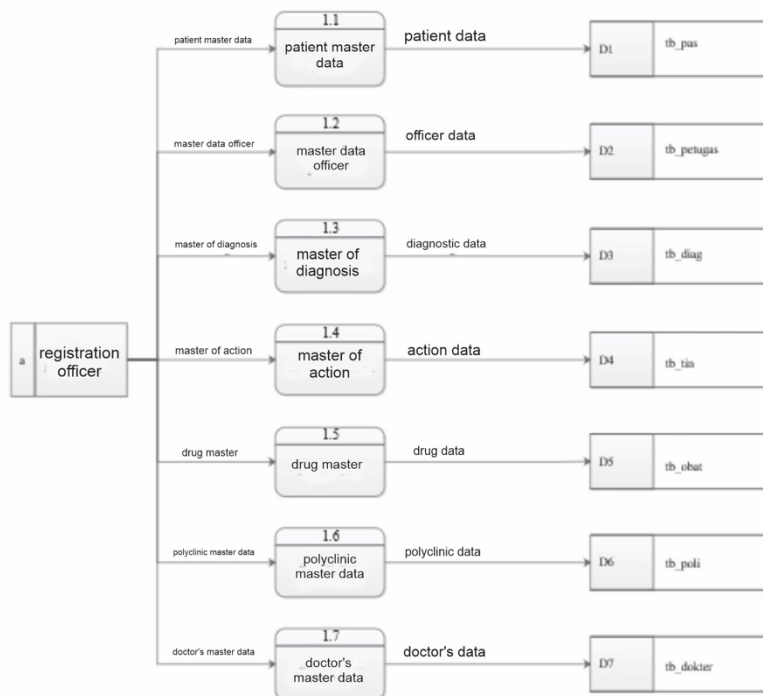


Figure 5. DFD Level 1 Master Data Management

6) Design

The design stage is the stage of changing a conceptual requirement into a real specification. The system design stage can be divided into 2 stages, namely the logical design (logical design) and the physical design stage (physical design). The differences between the two can be explained as follows:

a) Logical Design

Logical design is part of the design phase in SDLC where all the functional features of the system are selected from the analysis phase and are described separately from the computer platform that will be used later.

b) Physical Design

In this section, the logical specifications are transformed into technological details by which programming and system development can be accomplished.

At this stage, the researcher produces a logical design designing inputs such as patient data, health worker data, action data, diagnostic data, incoming patient assessment data, patient examination data, and registration data. Design a process using an electronic medical record process. Designing the outputs that are generated such as patient data reports, health worker data reports, registration data reports, incoming assessment data reports, patient examination data reports, diagnostic data reports, and action data reports. While the physical design consists of the software used is Adobe Dreamweaver, XAMPP, MySQL, and PHP. The hardware used is a laptop.

Figure 6. Id-Password Input Form Design

Figure 7. Electronic Medical Record Menu Form Design

7) Implementation

System implementation is the system implementation stage that will be carried out if the system is approved, including for operation. In the fifth stage of SDLC, several things need to be done, namely:

- a) Testing, which is testing the results of the program code that has been generated from the physical design stage.
- b) Installation, after the program passes the trial, the software and hardware will be installed at the client organization or company and officially put into use to replace the old system.

Figure 8. Patient Data Menu Form Design

The results of the implementation of Web-Based Outpatient Electronic Medical Records at the Al-Ikhlal Clinic in Sragen are as follows:

a) Implementation of Program Activation

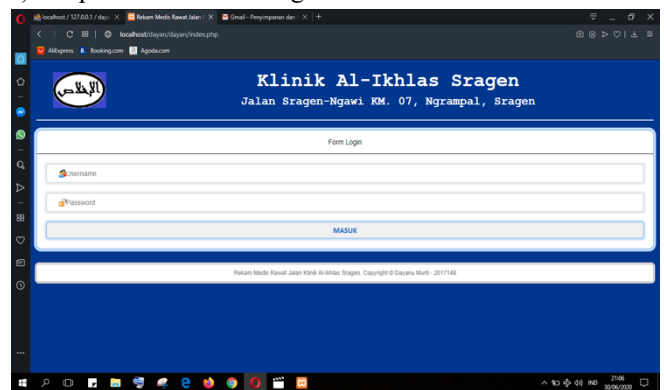


Figure 9. Login Form

Program activation begins by opening a browser application available on the computer. After that, type the link [http://localhost/dayanu/index, php](http://localhost/dayanu/index.php) in the http column available in the browser and wait a few moments until the login field is available and enter the Id-Password as follows:

b) Menu Master Implementation

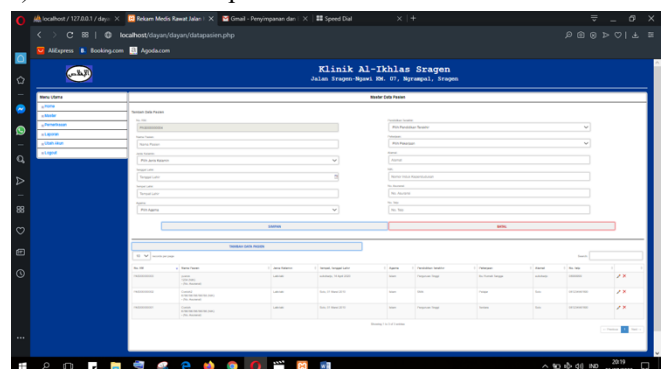


Figure 10. Main Menu Form

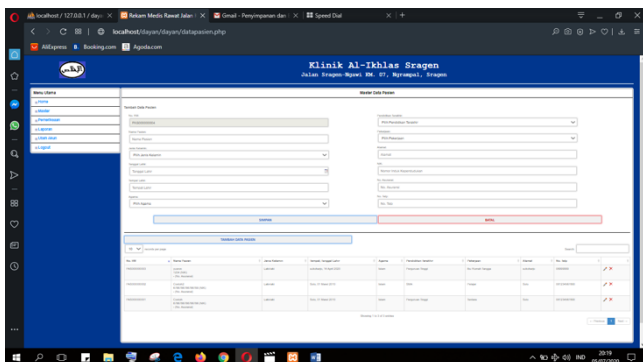


Figure 11. Master Data Input Form for Patients at the Clinic

8) Maintenance

The final step of SDLC is at this stage the system is systematically repaired and upgraded. The result of this stage is a new version of the software that has been created. The improvements that are carried out can vary widely, from fixing a crashed program to functioning again to adding new program modules in response to changing needs.

IV. CONCLUSION

Clinic is a health service facility that provides individual services, both providing basic and/or specialized medical services. The processing of medical record documents for outpatient services at the Al-Ikhlās Clinic, Sragen, is still carried out conventionally, starting from registration to storing documents. The development of electronic medical records with a development life cycle (SDLC) system can provide benefits for officers in processing clinical patient data.

SDLC is a logical process used by a systems analyst to develop an information system that involves requirements, validation, training, and system owners. SDLC has many functions, including as a means of communication between the development team and stakeholders. SDLC also serves to

divide clear roles and responsibilities between developers, designers, business analysts, and project managers. The SDLC system development is carried out using project identification and selection, project initiation and planning, analysis, design, and maintenance.

Electronic Medical Records built using the PHP programming language and MySQL database, where this system has the advantage of being able to speed up the registration process and data processing of computerized patient medical records and make it easier for officers to make reports to clinic leaders.

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Patient Clinical Data Integration in Integrated Electronic Medical Record System using System Development Life Cycle (SDLC)

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Abstract—Clinic is a health service facility that provides individual services, both providing basic and/or specialized medical services. The processing of medical record documents for outpatient services at the Al-Ikhlal Clinic, Sragen, is still carried out conventionally, starting from registration to storing documents. Often there is duplication, inaccuracy in recording, and presentation of reports that are not in accordance with the services at the service. The purpose of this study was to create medical records for inter-clinic patient data interventions with the development life cycle system development (SDLC) method so that it could provide benefits for officers in processing clinical patient data. This type of research is qualitative in nature using the SDLC system development method carried out by selecting projects, initiating and planning projects, analysis, design, Implementation, and maintenance. The subjects in this study were medical record officers and doctors, while the object under study included recording and processing patient medical record data. The development of the SDLC system is the main instrument to replace the old system as a whole or to improve the existing system, and the data sources used are primary data and secondary data. Electronic Medical Records built using the PHP programming language and MySQL database, where this system has the advantage of being able to speed up the registration process and data processing of computerized patient medical records as well as the ease of staff in making reports to clinic leaders. Electronic Medical Records of Al-Ikhlal Sragen Clinic can produce information in the form of patient data reports, diagnosis reports, action data reports, drug data reports, officer data reports, doctor data reports, polyclinic data reports, examination data reports, and patient registration data reports.

Keywords—electronic medical record, SDLC, outpatient, website based

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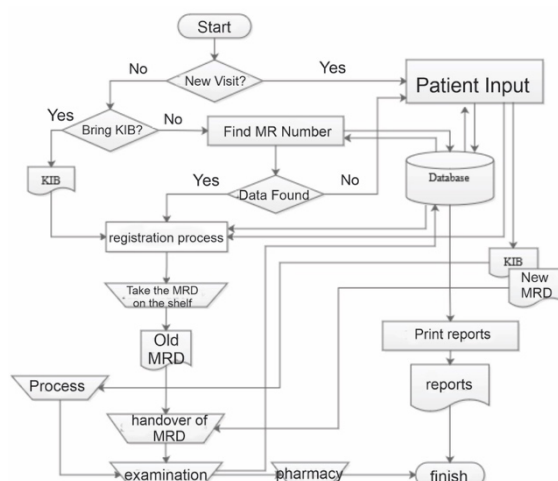


Figure 1. The System Built in the Al-Ikhlās Clinic, Sragen

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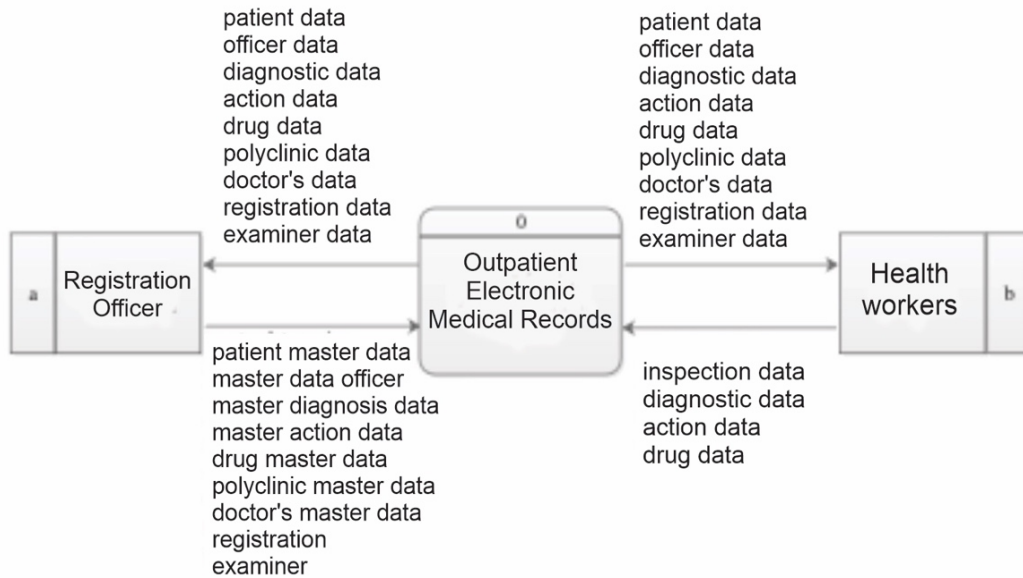


Figure 2. DFD Outpatient Electronic Medical Record Context

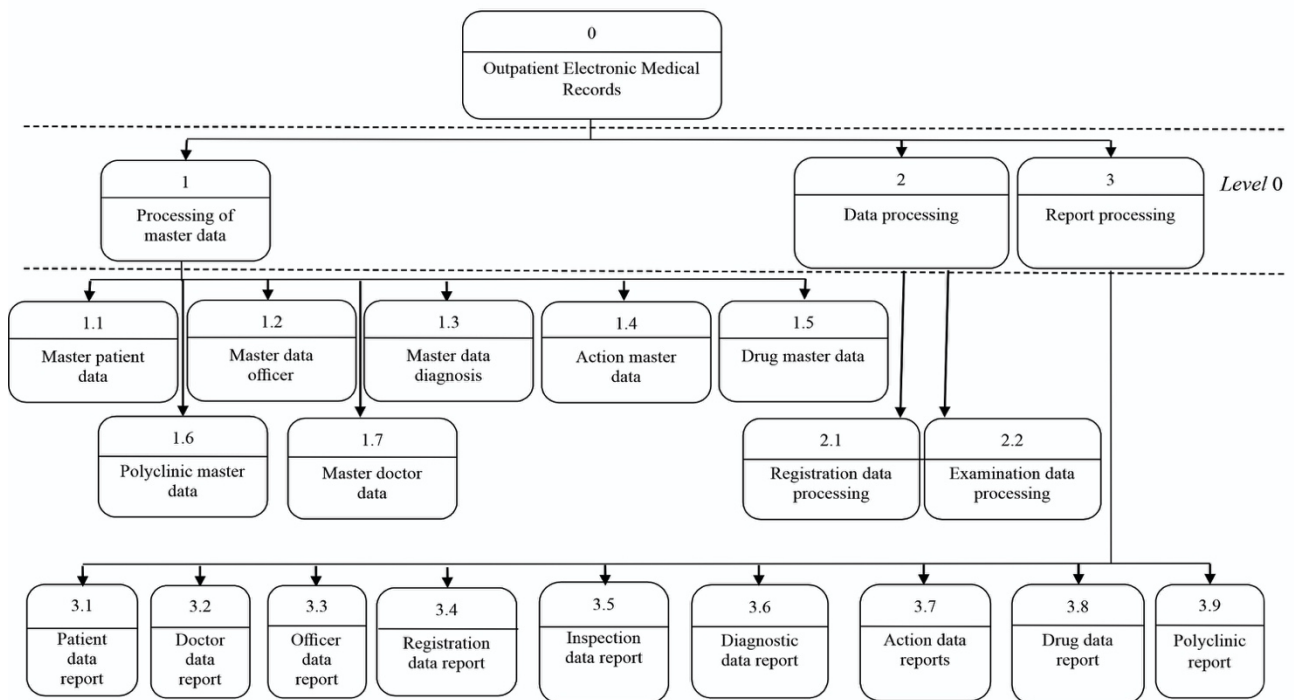


Figure 3. Outpatient Electronic Medical Record Tiered Diagram

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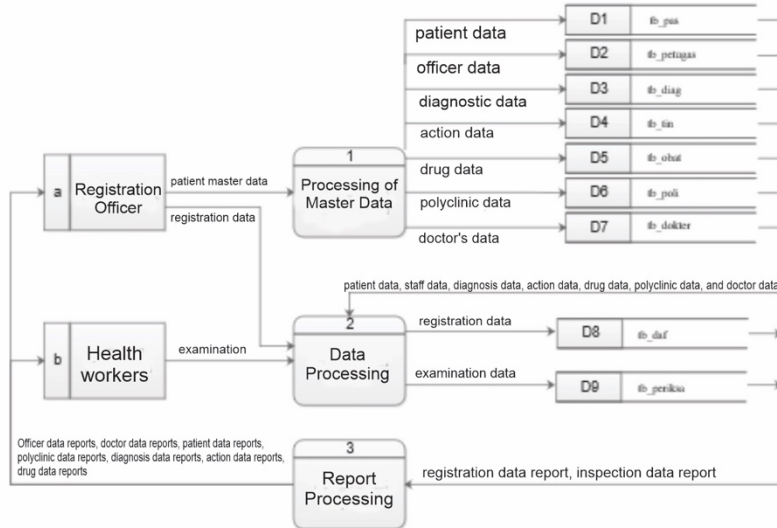


Figure 4. DFD Level 0 Outpatient Electronic Medical Records at the Clinic

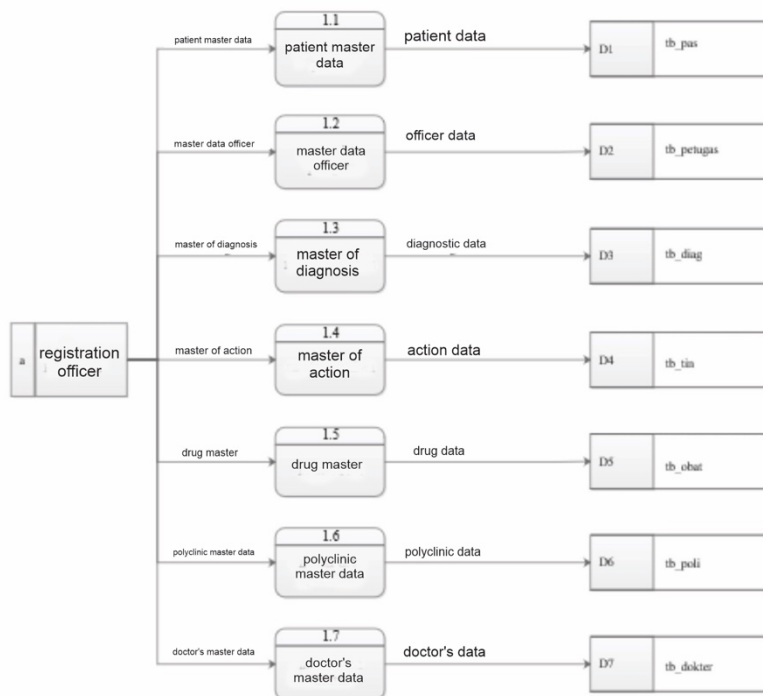


Figure 5. DFD Level 1 Master Data Management

6) Design

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Figure 6. Id-Password Input Form Design

Figure 7. Electronic Medical Record Menu Form Design

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System implementation is the system implementation stage that will be carried out if the system is approved, including for operation. In the fifth stage of SDLC, several things need to be done, namely:

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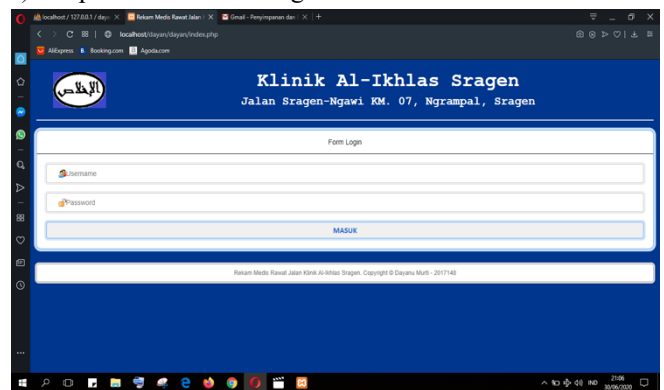


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b) Menu Master Implementation

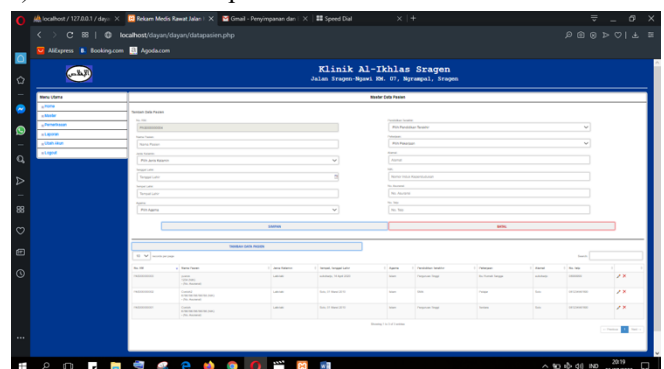


Figure 10. Main Menu Form

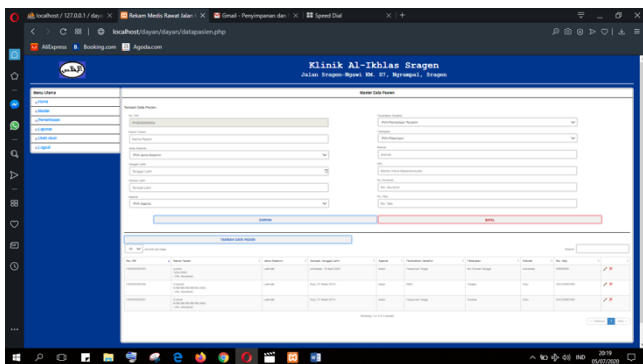


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IV. CONCLUSION

Clinic is a health service facility that provides individual services, both providing basic and/or specialized medical services. The processing of medical record documents for outpatient services at the Al-Ikhlâs Clinic, Sragen, is still carried out conventionally, starting from registration to storing documents. The development of electronic medical records with a development life cycle (SDLC) system can provide benefits for officers in processing clinical patient data.

SDLC is a logical process used by a systems analyst to develop an information system that involves requirements, validation, training, and system owners. SDLC has many functions, including as a means of communication between the development team and stakeholders. SDLC also serves to

divide clear roles and responsibilities between developers, designers, business analysts, and project managers. The SDLC system development is carried out using project identification and selection, project initiation and planning, analysis, design, and maintenance.

Electronic Medical Records built using the PHP programming language and MySQL database, where this system has the advantage of being able to speed up the registration process and data processing of computerized patient medical records and make it easier for officers to make reports to clinic leaders.

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