SNUH SEOUL NATIONAL UNIVERSITY HOSPITAL

OHDSI
OBSERVATIONAL HEALTH DATA SCIENCES AND INFORMATICS

소아암·희귀질환지원사업단
CHILD CANCER & RARE DISEASE PROJECT

공동연구사업부
소아암·희귀질환지원사업단

Connecting pediatric data for better child health

KIDSNet

Korea Kids Network

Suhyun Kim

Healthcare AI Research Institution (HARI),
Seoul National University Hospital (SNUH)

Seoul National University Hospital

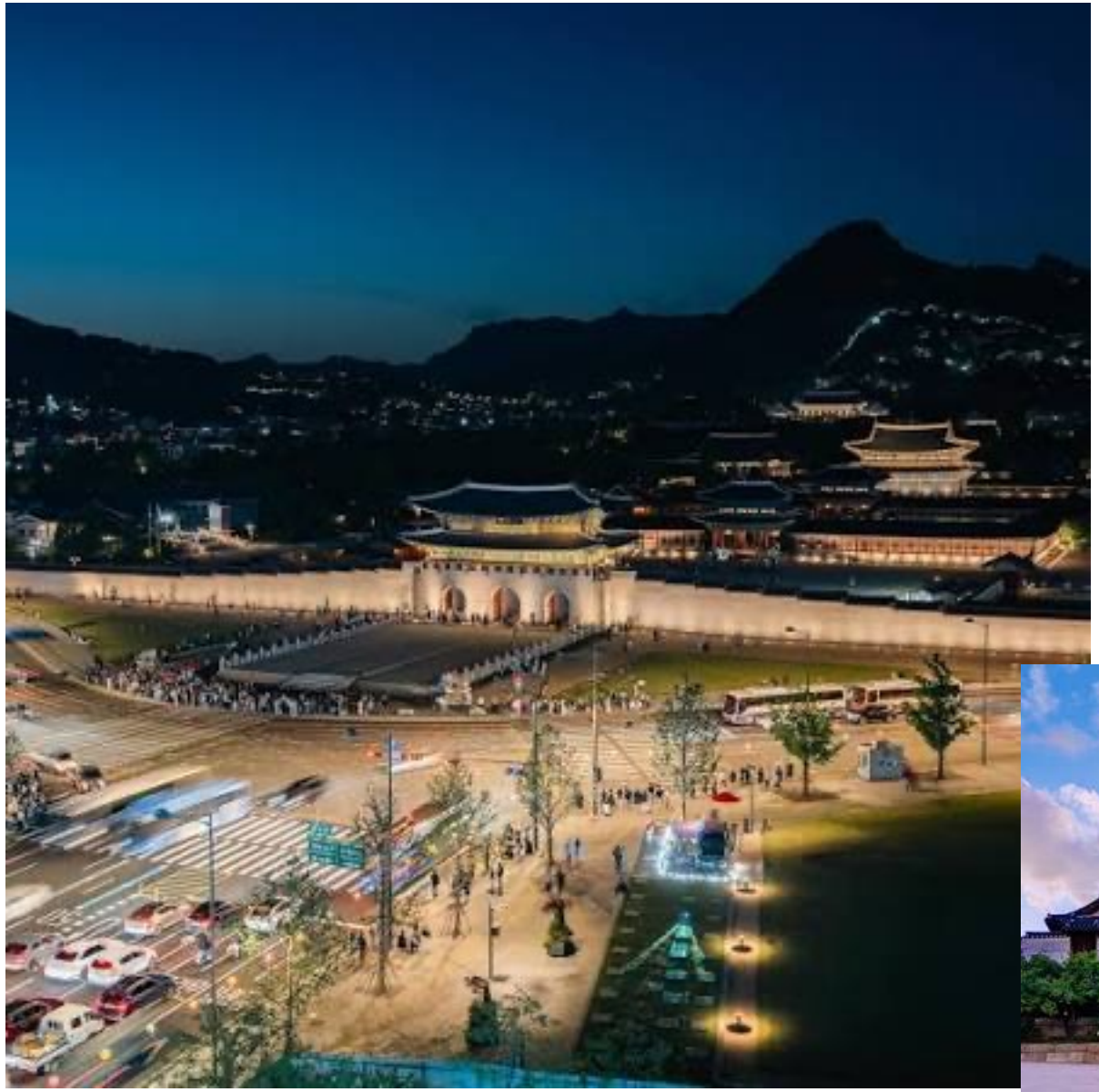
Number of Employees (2025.12.31)

Classification	Number
Doctors	1,559
Nurses	3,188
Phamacists	150
Medical Technologists	936
Others	2,688
Total	8,521

Inpatient beds (2025.12.31)

Classification	Main	Children	Cancer	Total
General beds	1,130	260	46	1,436
Special care beds	23	6	-	29
I.C.U	106	24	-	130
N.I.C.U	-	40	-	40
Total	1,259	330	46	1,635

Seoul National University Hospital



Child Cancer & Rare Disease Project

The management philosophy
of the late Chairman Lee Kun-hee

"Respect for Humanity, Contribution to Society"

KRW 1 Trillion Donated to Korea's Healthcare Sector

Infectious Disease Response	Support for Children with Pediatric Cancer & Rare Diseases
Establishment of a specialized infectious disease hospital and research institute 대한민국 감염병 극복 지원 사업 Korea's infectious disease overcoming support project	Led by Seoul National University Children's Hospital 소아암·희귀질환지원사업단 CHILD CANCER & RARE DISEASE PROJECT
USD 750M	USD 300M

Overcoming Pediatric Cancer & Rare Diseases Initiative

SAMSUNG SNUH

The family of the late Chairman Lee Kun-hee
&
Seoul National University Hospital

- Jan 2021 — Donation proposed by the Samsung family
- Mar 2021 — Master plan for the "Overcoming Pediatric Cancer & Rare Diseases" initiative established
- May 3, 2021 — Donation agreement ceremony held

Essential Elements of Pediatric Healthcare

Conducting Innovative Clinical Research

- Focused research on pediatric cancer and rare diseases
- Strengthened research capacity for severe pediatric conditions, driving improvements in care quality
- Shifting from treatment-centered care to big data-driven patient management solutions

Accurate Diagnosis and Safe Treatment

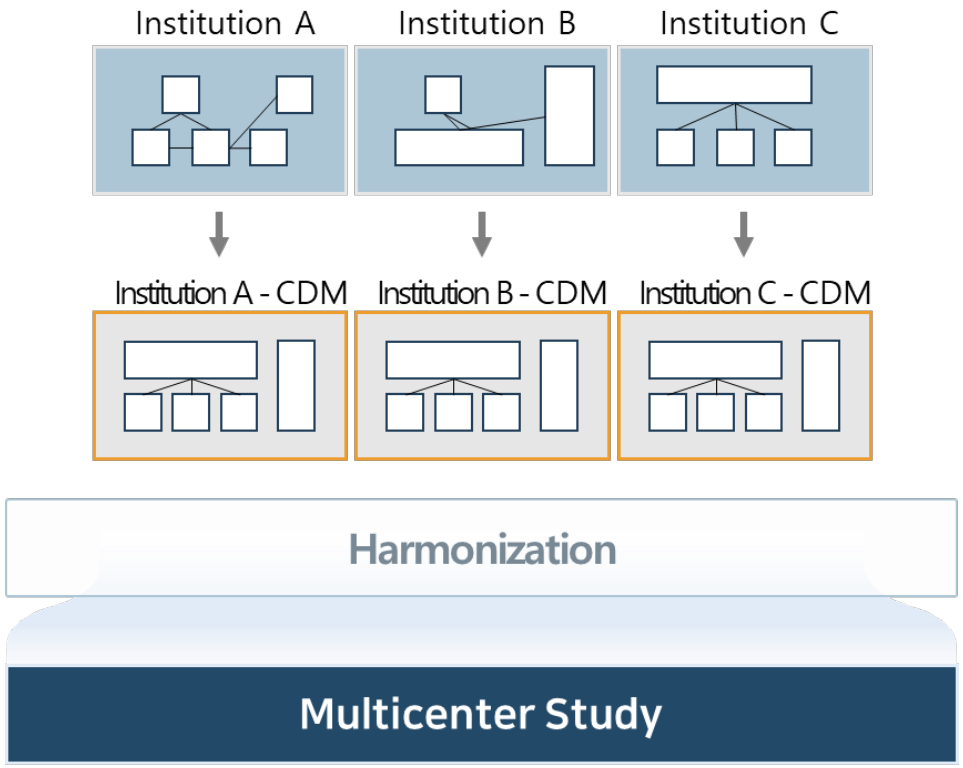
- Building an integrated genomic and clinical bio-big data platform
- Expanding opportunities to pursue "a happy life for every child"

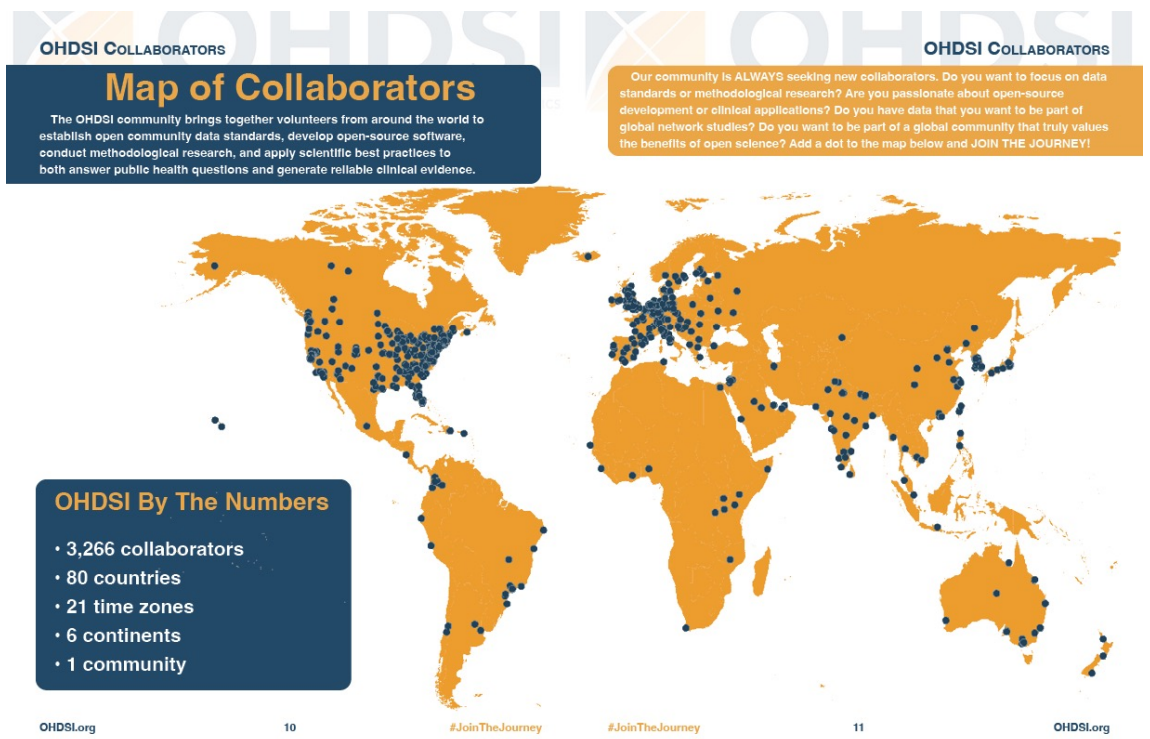
Benchmarking PEDSnet

Domain	Examples	Utility to research
Demographics	Age, date of birth, gestational age, sex, ethnicity, race, zip code, PEDSnet health system site, primary care provider(PCP), death and cause of death(if available), tobacco use	Exposures, health determinants, confounders, mediators, effect modifiers, outcomes (death);Zip codes and health system site can be geo coded and linked to area-level environmental factors influencing health and health outcomes;
Outpatient encounters (~75 visit specialty types)	Primary care visits, specialty care clinics (e.g.,cardiology, endocrinology, nephrology, oncology, etc), physical therapy, occupational therapy, speech language pathology, medical genetics/genomics, etc	Provides longitudinal follow-up and duration of clinical course; health care utilization measures; Distinguishes between specialty care (and type of specialty care)and primary care visits;
Inpatient admissions	Length of stay, discharge status; diagnoses, procedures, medications, and lab results associated with inpatient stay	Measures health care utilization for patients and conditions; Provides longitudinal data to evaluate disease course and severity of illness;
Emergency department encounters	Diagnoses, procedures, medications, and lab results associated with ED visit; ED visits resulting in inpatient admission	Provides markers for disease progression and clinical outcomes; Health care utilization measures; Markers for chronic disease control and severity;
Anthropometrics	Height (cm) and weight (kg),BMI, head circumference	Outcomes, health determinants, confounders, mediators, effect modifiers; Markers for health status;
Vital signs	Temperature, blood pressure	
Providers	Specialty, health care facility	
Diagnosis	Final diagnoses are recorded at each encounter and are mapped to a standardized codes(typically SNOMED-CT)	
Procedures	Procedures are recorded at each encounter and are mapped to standardized SNOMED-CT, ICD-9Procedure, ICD-10 Procedure, CPT-4, andHCPCS codes	
Prescribed medications	Medications ordered are recorded at each encounter and mapped to a standardized RxNorm code	
Dispensed Medications	Medications dispensed, when available, are recorded and mapped to a standardized RxNorm code	
Laboratory Results	Key components of lipid panel, complete metabolic panel, complete blood counts, microbiologic cultures, liver function tests, urinalysis, viral panels, etc	

PEDSnet(https://pedsnet.org/)

Adopting OMOP CDM: Enabling Multicenter Research





KIDSNet (Korea Kids Network)

We built a collaborative research network for child cancer & rare diseases

A CDM established across children's hospitals nationwide — improving research accessibility through multimodal data

7	1.69M	5-yr	OMOP
hospitals	pediatric patients	2022 –	CDM standardized

Growing the Network: Five Years of Phased Institutional Expansion

Year 5 (2026)

CNUH
joins as a collaborating institution

Year 4 (2025)

CNUH
joins as a collaborating institution

Year 3 (2024)

KNUH
joins as a collaborating institution

Year 2 (2023)

JNUH
joins as a collaborating institution

Year 1 (2022)

Data Network of 7 Hospitals, 1.69M Pediatric patients

Seoul

SNUH
SEOUL NATIONAL UNIVERSITY HOSPITAL

Chungcheongdo

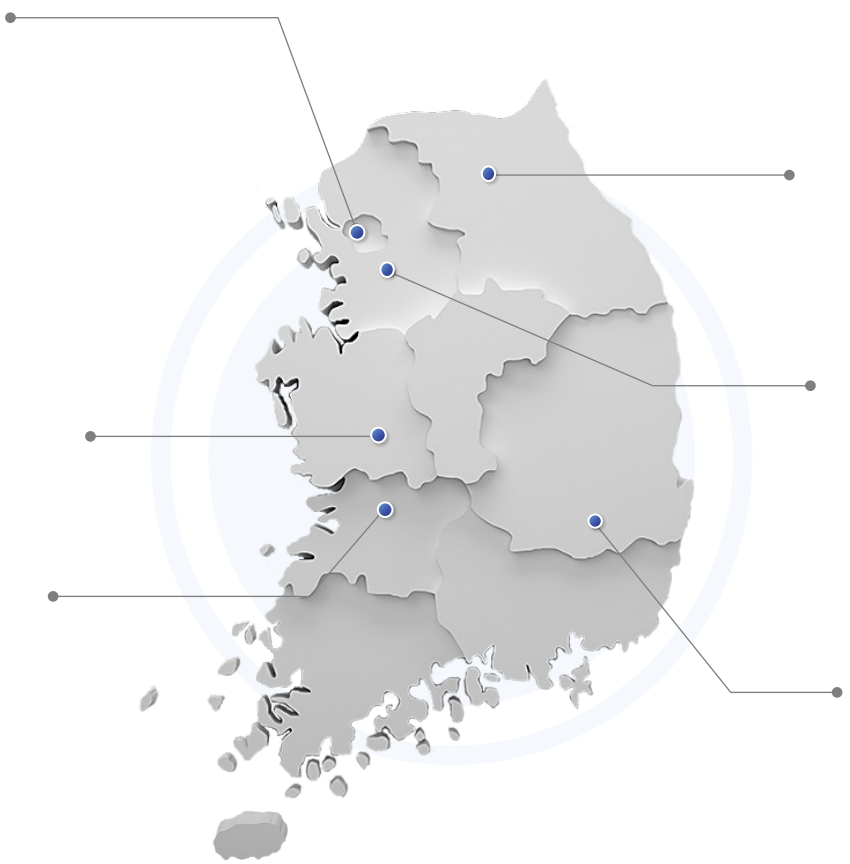
CNU HOSPITAL
CHUNGNAM NATIONAL UNIVERSITY HOSPITAL

충북대학교병원
CHUNGBUK NATIONAL UNIVERSITY HOSPITAL

Jeonlado

JBUH
JEONBUK NATIONAL UNIVERSITY HOSPITAL

전남대학교병원
CHONNAM NATIONAL UNIVERSITY HOSPITAL



Gangwondo

KNUH
Kangwon National University HOSPITAL

Kyeonggido

SNUH
SEOUL NATIONAL UNIVERSITY BUNDANG HOSPITAL

Gyeongsangdo

Under discussion for additional collaborative research institutions

Pediatric-Specific CDM Data Status

Institution		Pediatric CDM Database		2026 Incremental Build		
		Data Period	Patients Count	Data Period		Patients Count
Lead	Seoul National University Hospital	2004.10 - 2025.12	824,077	+12 months	2025.01 - 2025.12	35,929
Sub 1	Seoul National University Bundang Hospital	2003.05 - 2024.12	508,225	Incremental build scheduled for H2		
Sub 2	Chungnam National University Hospital	2019.11 - 2026.04	118,843	+ 7 months	2025.10 - 2026.04	20,514
Sub 3	Jeonbuk National University Hospital	2010.01 - 2025.12	177,898	+ 12 months	2025.01 - 2025.12	19,205
Sub 4	Kangwon National University Hospital	2003.08 - 2026.03	136,125	Incremental build scheduled for H2		
Sub 5	Chungbuk National University Hospital	2020.07 - 2025.06	344,718	+ 6 months	2025.01 - 2025.06	296,819
Sub 6	Chonnam National University Hospital	2011.01.~2025.12	193,173	New build	2011.01 - 2025.12	193,173

※*Pediatric: aged 18 years or younger at first visit, As of June 2026*

Built from what pediatric clinicians asked for

Perinatal

- Nursing admission records
- Maternal pregnancy & delivery history
- Infection status (HBV · syphilis · HIV)
- ventilator settings

Neonatology

Growth & body composition

- Height · weight · head circumference
- + age-based percentiles Body composition (BCM · BIA)

Endocrinology, Nephrology

Special tests

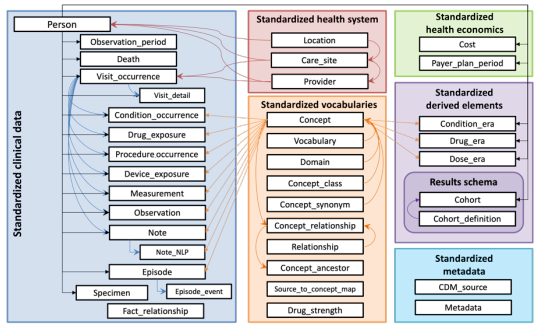
- Cardiac & brain ultrasound
- Pulmonary function · allergy testing

Exists only as free-text reports, no structured codes

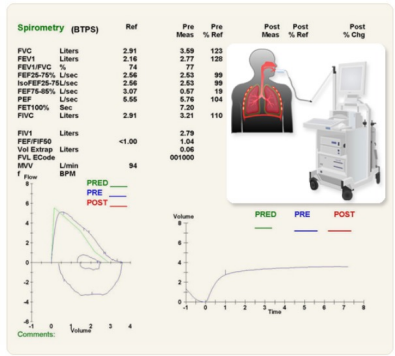
Cardiology, Neurology, Gastroenterology, Pulmonology, Allergy

CDM Construction for Pediatric-Specific Data

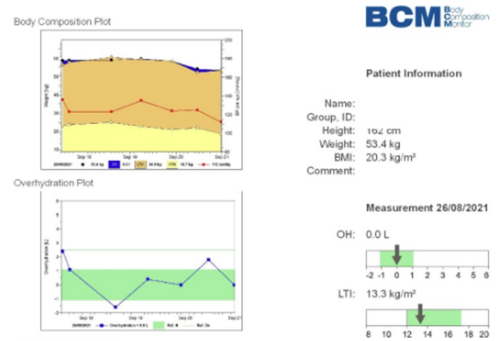
Clinical Data



Pulmonary Function Test (PFT)

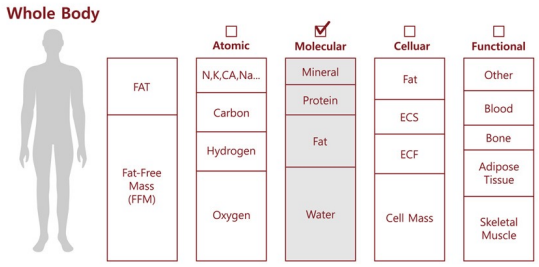


Body Composition Monitor (BCM)



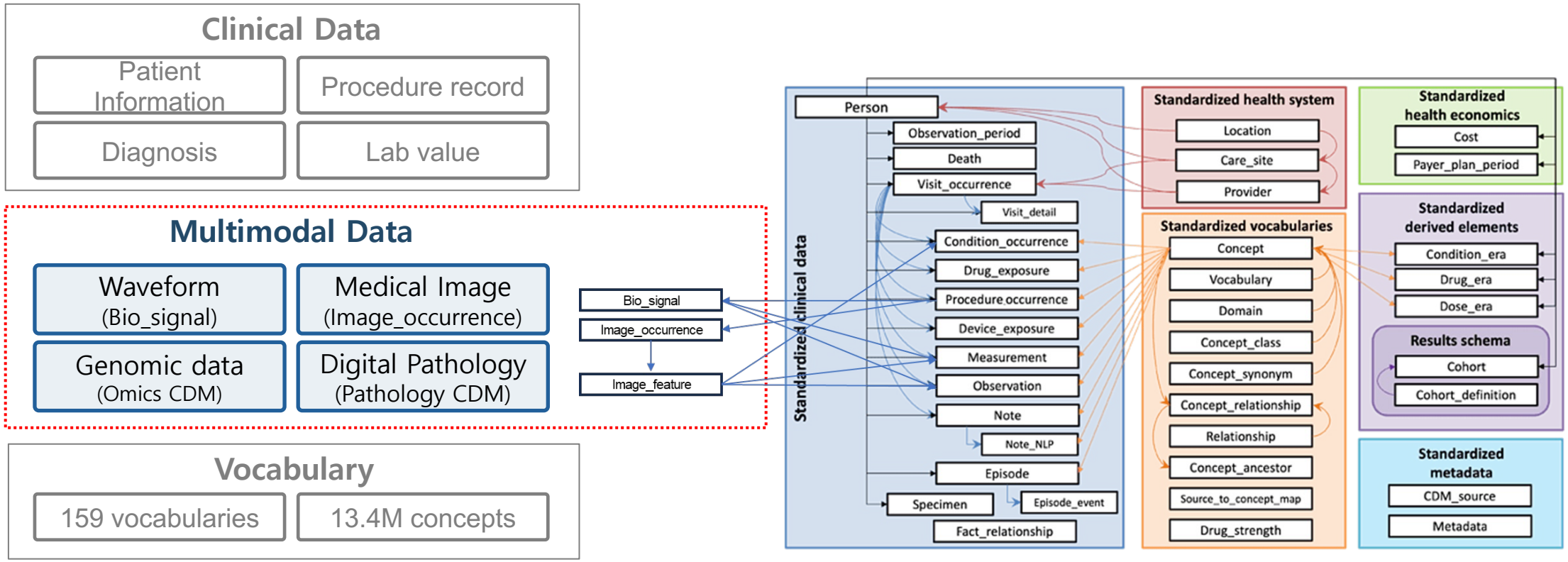
Allergy Testing (MAST · SPT)

Body Composition Analysis



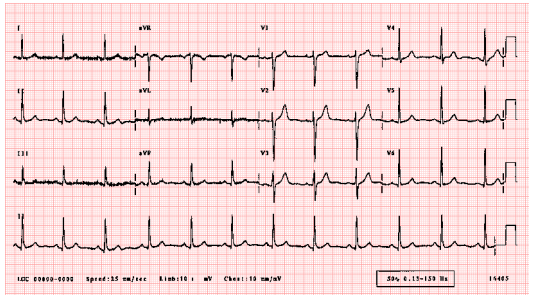
NICU Discharge Summary

CDM Extension

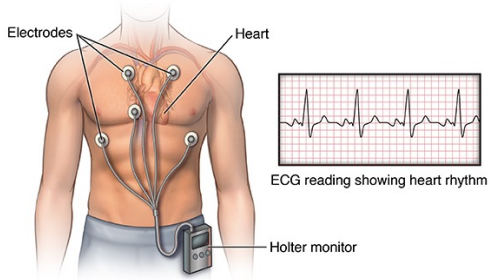


CDM Extension Construction for Pediatric-Specific Data

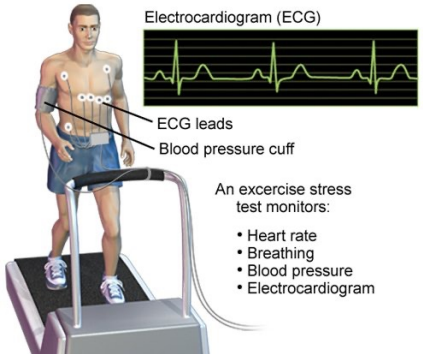
12-lead ECG



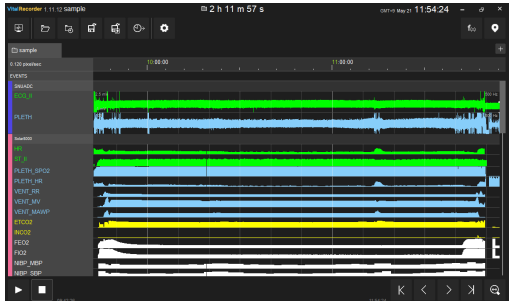
24hour ECG, Holter



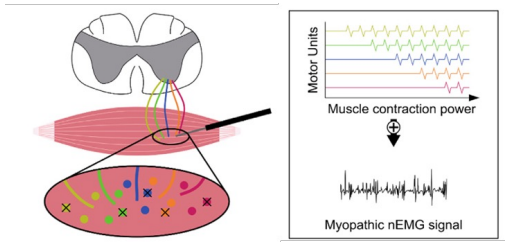
Treadmill ECG



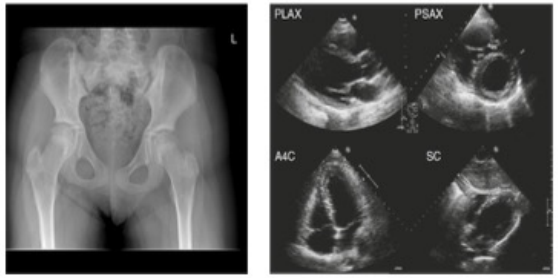
Vital monitoring record



Electromyography (EMG)



Medical Image



Proposing a Bio-signal Extension Domain

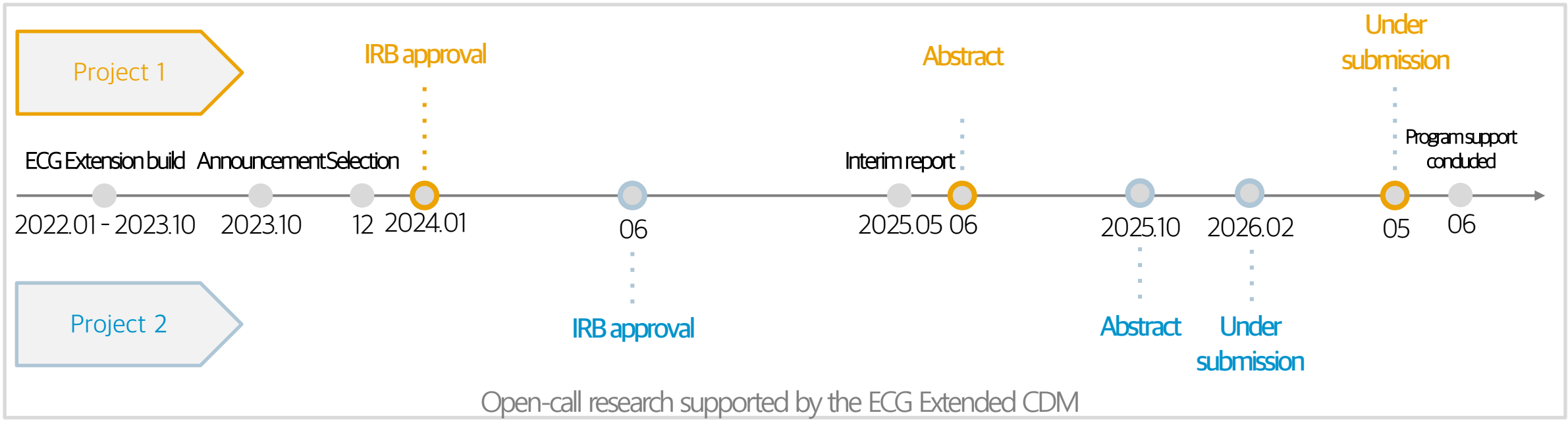
A common schema to capture bio-signals — ECG, Holter, TMT, ABR, EMG, Vital record and beyond

No	Field	PK	FK	Required	Type	Description	Example
1	bio_signal_id	Yes	No	Yes	integer		1
2	person_id	No	Yes	Yes	integer		1209972
3	bio_signal_concept_id	No	Yes	Yes		Bio signal concept id	4179815
4	bio_signal_source_value	No	No	No	varchar(200)		EMG - Sensory NCS L Median Digit II
5	bio_signal_date	No	No	No	date	Date	2015-01-14
6	bio_signal_datetime	No	No	No	timestamp	Date and time	2015-01-14 09:21:36
7	file_path	No	No	Yes	varchar(200)	File path	1209972_20150114_0921.xml
8	visit_occurrence_id	No	Yes	No	integer		48746453
9	event_id	No	Yes	No	procedure		12345
11	evnet_field_concept_id	No	Yes	No	procedure		1147301

Open-Call Research (ECG)

2023 — Full-cycle research support and successful completion of the first open-call studies using ECG Extended CDM data

- Project 1 (PI: Prof. Mikyoung Song, SNUH)
  Deep learning–based ECG model to predict biventricular dysfunction and cardiac dilation in congenital heart disease
- Project 2 (PI: Prof. Jihye You, JNUH)
  12-lead ECG model for early detection of mildly reduced left-ventricular function in neonates



19

Open-Call Research (ECG project 1)

SNUH 서울대학교병원융합의학기술원 INSTITUTE OF CONVERGENCE MEDICINE WITH INNOVATIVE TECHNOLOGY

2025 대한디지털헬스학회 춘계학술대회

Multimodal Deep Learning for Predicting Ventricular Dysfunction in Congenital Heart Disease Patients Using ECG and Metadata

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Introduction

1. Clinical Background & Research Gap
- 선천성 심장병(CHD)은 해부학적 구조가 다양하고 복잡하여, 장기 추적 중 심실 기능 저하, 확장, 심근 섬유화 등 이차적 합병증이 자주 발생함
- 이러한 심기능 이상은 심부전, 재입원, 조기사망 등의 중대한 임상 결과로 이어질 수 있어 조기 예측 및 모니터링이 중요함
- 그러나 CHD 환자는 구조적 이질성과 데이터의 희소성으로 인해 ECG 기반 심기능 예측 연구가 거의 수행되지 않았음

2. Role of ECG and Study Objective
- ECG는 비침습적이며 비용이 낮고 반복 측정이 가능하여 심기능 이상을 반영할 수 있는 유용한 진단 도구임
- 본 연구는 CHD 환자에서 ECG 신호와 임상 데이터를 결합한 멀티모달 딥러닝 모델을 개발하고자 함
- 심장 MRI 기반의 심실 기능 레이블과 ECG를 연계하여, CHD 환자의 심기능 이상을 조기에 예측할 수 있는 인공지능 기반 예측 도구 구축을 목표로 함

Methods

1. Study Population & Data Collection
- 2003년부터 2023년까지 서울대학교병원에서 선천성 심장병(CHD)으로 진단받고 심장 MRI를 시행한 1,565명의 환자를 초기 코호트로 포함함
- MRI에 우심실 박출률(RV EF) 정보가 없거나 단심실 구조, systemic RV, 심근병증이 있는 경우, 또는 MRI 시점 전후 6개월 내 ECG가 없는 경우는 제외함
- 최종적으로 1,057명의 환자와 1,680건의 MRI–ECG 매칭 데이터를 분석에 포함함

2. Model Development & Evaluation
- 입력은 12-lead ECG waveform(8개 리드 기반 파생)과 메타데이터(age, sex, BSA, QRS duration)로 구성되며, 출력은 5개의 심실 기능 이상 여부를 예측함
- 모델은 세 가지 모듈로 구성됨: 1D ECG waveform을 처리하는 1DCNN 모델 (WaveNet), ECG에서 생성된 스펙트로그램을 입력으로 받아 학습하는 2D CNN 모델(SpecNet), 나이, 성별 등 메타데이터를 입력으로 하는 MLP 모델(MetaNet)
- 세 모듈의 출력을 결합하여 최종 예측을 수행하는 멀티모달 구조임

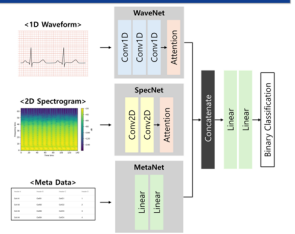

Figure 1. Architecture of the Proposed Multimodal ECG Model

Results

- **Model Performance**
  - 멀티모달 딥러닝 모델은 총 5개의 심실 기능 이상 레이블에 대해 다중 이진 예측을 수행함
  - 중증 우심실 기능 저하(RV EF ≤ 35%)에서 AUROC 0.8644 로 가장 높은 분류 성능을 보임
  - rv_combined_or (0.788)이 가장 높은 AUPRC를 기록해, 불균형 상황에서 양성 샘플 검출력이 우수함
  - 경도 이상 포함 우심실 기능 저하(RV EF ≤ 46%), 우심실 확장, 복합 우심실 이상에서도 AUROC 0.71 이상, F1-score 0.60–0.75 수준의 양호한 예측 성능을 보임

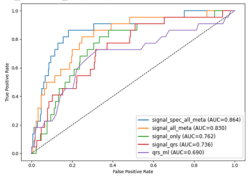

Figure 2. ROC Curves for RV Dysfunction_35

Table 1. Performance Metrics of the Multimodal ECG Model

Label	AUROC	AUPRC	Accuracy	Precision	Recall	F1
rv_dysfunction_35	0.8644	0.3284	0.8958	0.3415	0.6364	0.4444
rv_dysfunction_46	0.7114	0.6689	0.6577	0.6030	0.7692	0.6761
rv_dilatation	0.7328	0.6776	0.6607	0.5510	0.8060	0.6545
rv_combined_and	0.7655	0.5808	0.7232	0.4965	0.7609	0.6009
rv_combined_or	0.7253	0.7884	0.6458	0.6339	0.9444	0.7586

Discussion and Conclusion

- 본 연구는 선천성 심장병(CHD) 환자에서 ECG와 메타데이터를 활용한 멀티모달 딥러닝 모델을 통해 심실 기능 이상을 예측할 수 있음을 입증함
- 특히 우심실 기능 저하 및 확장에 대한 예측 성능이 우수하며, 임상적으로 조기 개입에 기여할 수 있는 가능성을 시사함
- ECG라는 간편하고 접근성 높은 데이터 기반의 AI 모델이 CHD 환자 관리에 실질적으로 활용될 수 있는 기반을 마련함

References

[1] Sangha V, Nargesi AA, Dhingra LS, et al. Detection of left ventricular systolic dysfunction from electrocardiographic images. Circulation. 2023;148(9):765-777.
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[4] Ana Cristina Andrade et al. Determinants of Left Ventricular Dysfunction and Remodeling in Patients With Corrected Tetralogy of Fallot. J Am Heart Assoc. 2019 Sep 3;8(17):e009618.
[5] Craig S Broberg et al. Prevalence of left ventricular systolic dysfunction in adults with repaired tetralogy of Fallot. Am J Cardiol. 2011 Apr 15;107(8):1215-20.

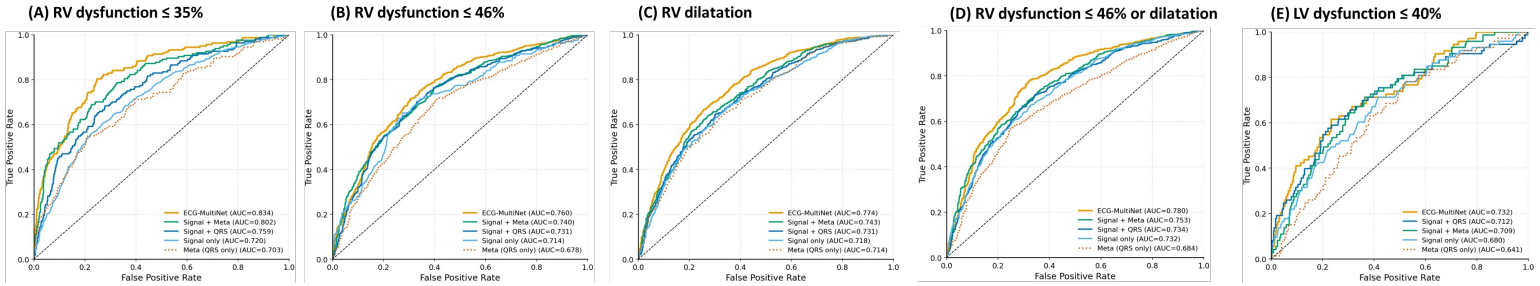
Contacts

Gyunho Roh* (iamguno@snu.ac.kr) & Professor Kwangsoo Kim† (kksoo716@gamil.com)

Multimodal deep learning combining 12-lead ECG with clinical metadata to predict ventricular dysfunction and dilation in congenital heart disease

(AUROC 0.86 for severe RV dysfunction)

Results – ML model performance



Open-Call Research (ECG project 2)

Detection of Reduced Left Ventricular Ejection Fraction in Neonates Using a Deep Learning Model Based on 12-Lead ECGs

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The Korean Society of Cardiology

COI Disclosure

Name of First Author: Jihye You, Jiwon Kim

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Background

- Diagnosing neonatal LVEF is challenging
- Echocardiography: gold standard but resource-intensive
- Need for simple, scalable ECG-based screening

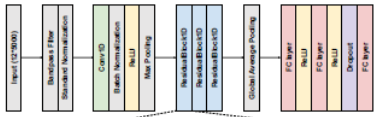
Objectives

- To develop a deep learning model that predicts reduced LVEF (≤ 55%) in neonates using standard, readily available 12-lead ECGs.
- The goal is to create a rapid, non-invasive screening tool for the early risk stratification of this vulnerable population.

Method

Study design and population

- **Design:** Single-center retrospective cohort study
- **Population:** Neonates (<1 month) underwent ECG (2004-2022)
  - Exclusion criteria 1) No echocardiographic data (n=1,038)
    2) >7 days between echo and ECG (n=719)
    3) Missing LVEF values (n=593)
  - **Final cohort:** 2,078 patients;
    Control (LVEF >55%): n=1,880; Reduced LVEF (≤55%): n=198



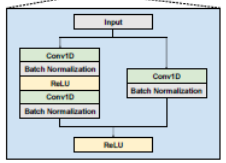


Figure 1 Architecture of the deep learning model

Data preprocessing and model training

- **ECG input:** 12 leads (I, II, III, V1–V6, aVR, aVL, aVF); 10-sec segments (500 Hz)
- **Data split:** Training set (before 2020): n= 1,856; Test set (2020 onward): n= 222
- **Model architecture**: CNN-based ResNet (Figure 1)
- **Training strategy:**
  - Train : validation = 89 : 11 (train: 1,646; validation: 210)
  - 20 epochs; early stopping after 3 epochs without AUPRC improvement

Result

- **Hyperparameters:**
  - Learning rate = 7e-5
  - Batch size = 32
  - Dropout = 0.1
- **Dataset**: 2,078 samples (class imbalance ≈ 10:1)

Subgroup	Accuracy	F1-score	AUROC	AUPRC	Sensitivity	Specificity
All	0.86	0.24	0.83	0.31	0.50	0.87
CHD						
True	0.85	0.22	0.81	0.32	0.44	0.87
False	0.87	0.40	0.95	0.50	1.00	0.86

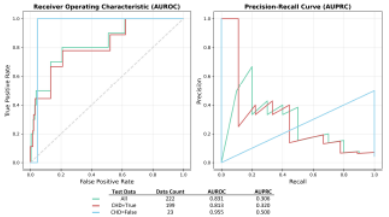


Figure 2 AUROC & AUPRC for all test data

Conclusion

- Developed a CNN-based ECG model predicting reduced LVEF (≤55%) in neonates
- Achieved high performance (AUROC 0.87, AUPRC 0.82) despite small, imbalanced dataset
- ECG-based AI offers a rapid, non-invasive tool for early cardiac risk screening in neonates

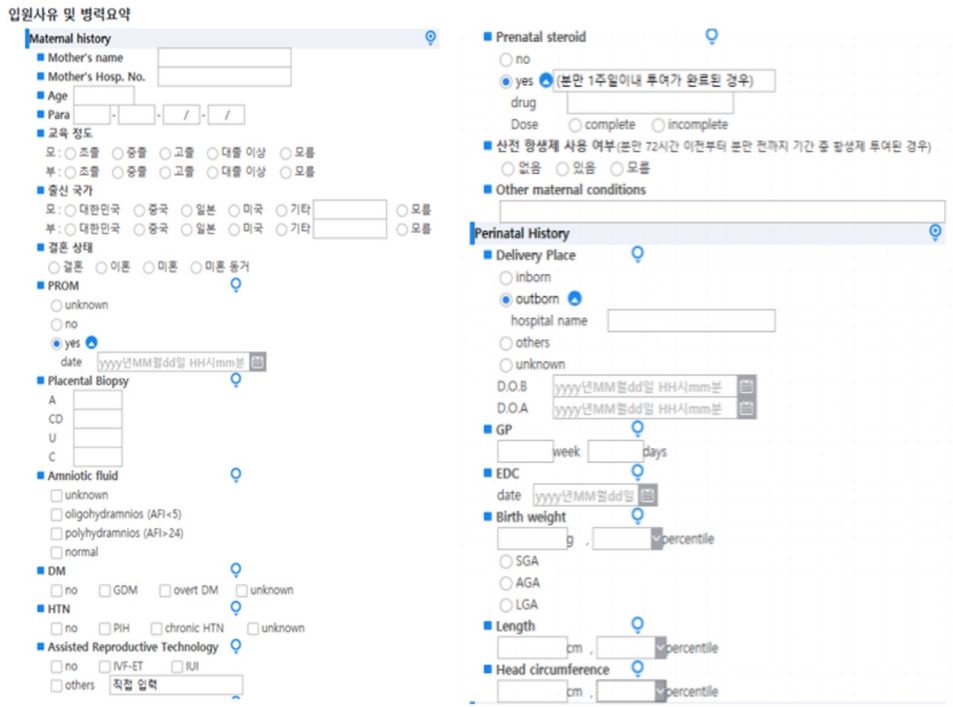
2025.10.16(Thu.)-18(Sat.)
Grand Walkerhill, Seoul, Korea
KSC2025

A CNN model detecting mildly reduced left-ventricular function (LVEF ≤ 55%) in neonates from 12-lead ECG alone — a fast, non-invasive screen without echocardiography

(AUROC 0.87)

Open-Call Research (NICU Discharge Record)

NICU Discharge Record: Data Collection & Standardization (2022–2024)



Sample NICU discharge record (original)

Observation_ concept_id	concept_name	domain	vocabulary	Qualifier_ concept_id	concept_name	domain	vocabulary	Value_as_ concept_id	concept_name	domain	vocabulary
44789950	Gestational age	Observation	SNOMED								
4059478	Estimated date of delivery	Observation	SNOMED								
4264825	Birth weight	Measurement	SNOMED								
4116803	Birth weight centile	Measurement	SNOMED					4123497	<3	Meas Value	SNOMED
4116803	Birth weight centile	Measurement	SNOMED					신규생성(서울C	3-9	Meas Value	
4116803	Birth weight centile	Measurement	SNOMED					신규생성(서울C	10-49	Meas Value	
4116803	Birth weight centile	Measurement	SNOMED					신규생성(서울C	50-90	Meas Value	
4116803	Birth weight centile	Measurement	SNOMED					신규생성(서울C	91-97	Meas Value	
4116803	Birth weight centile	Measurement	SNOMED					4131980	>97	Meas Value	SNOMED
4264825	Birth weight	Measurement	SNOMED					4145947	Small for gestational age fetus	Condition	SNOMED
4264825	Birth weight	Measurement	SNOMED					4076643	Appropriate growth	Observation	SNOMED
4264825	Birth weight	Measurement	SNOMED					4064287	Large for gestation age fetus	Condition	SNOMED
4014465	Birth length	Observation	SNOMED								
2000000457	Birth length centile	Observation						4123497	<3	Meas Value	SNOMED
2000000457	Birth length centile	Observation						신규생성(서울C	3-9	Meas Value	
2000000457	Birth length centile	Observation						신규생성(서울C	10-49	Meas Value	
2000000457	Birth length centile	Observation						신규생성(서울C	50-90	Meas Value	
2000000457	Birth length centile	Observation						신규생성(서울C	91-97	Meas Value	
2000000457	Birth length centile	Observation						4131980	>97	Meas Value	SNOMED
4015277	Birth head circumference	Measurement	SNOMED								
2000000458	Birth head circumference centile	Observation						4123497	<3	Meas Value	SNOMED
2000000458	Birth head circumference centile	Observation						신규생성(서울C	3-9	Meas Value	
2000000458	Birth head circumference centile	Observation						신규생성(서울C	10-49	Meas Value	
2000000458	Birth head circumference centile	Observation						신규생성(서울C	50-90	Meas Value	
2000000458	Birth head circumference centile	Observation						신규생성(서울C	91-97	Meas Value	
2000000458	Birth head circumference centile	Observation						4131980	>97	Meas Value	SNOMED
4265556	Form of placenta	Observation	SNOMED								
36716289	Multiple birth order	Observation	SNOMED					4101844	Twin birth	Condition	SNOMED
36716289	Multiple birth order	Observation	SNOMED					4094046	Triplet birth	Condition	SNOMED
36716289	Multiple birth order	Observation	SNOMED					45765500	Quadruplet birth	Condition	SNOMED
36716289	Multiple birth order	Observation	SNOMED	4112230	First	Meas Value	SNOMED				
36716289	Multiple birth order	Observation	SNOMED	4217781	Second	Meas Value	SNOMED				
36716289	Multiple birth order	Observation	SNOMED	4324384	Third	Meas Value	SNOMED				

Sample standard-terminology mapping dictionary

Open-Call Research (NICU Discharge Record)

2024 — Research Using the NICU Discharge Record Extended CDM

- Call announced Sept 2024; one project selected, research launched Jan 2025
- Selected project: Developing a personalized early enteral nutrition protocol for very-low-birth-weight infants based on maturity and risk (PI: Prof. Heeseung Cho, KNUH)

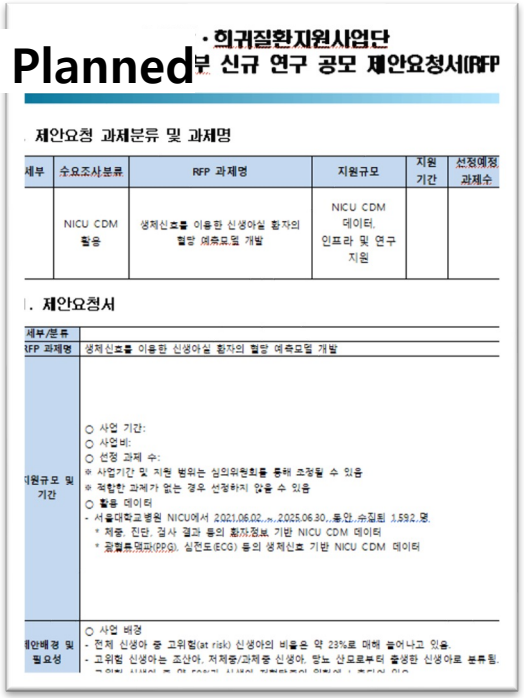
- NICU Discharge Record–Specific Quality Assessment
  Exploring the feasibility of data-quality assessment by comparing institution-level averages of key variables.
- NICU Discharge Record Data Items
  Gestational age, Birth weight (incl. percentile), Apgar score (1, 5, 10 min), Intraventricular hemorrhage (IVH, incl. grade), MRI (findings — free text), Etc.

Open-Call Research (TBC)

2025 — Data-Use Open Call: Announcement & Selection in Progress

- Using CDM-extended NICU VitalDB data
- Using CDM-extended CXR DICOM data (in children with lower respiratory tract infection)

2026 — Echocardiography (DICOM) Data-Use Open Call Planned



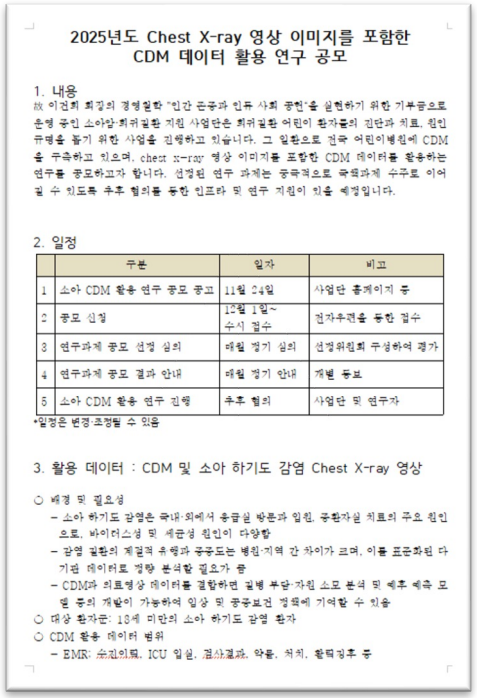
·희귀질환지원사업단
부 신규 연구 공모 제안요청서(RFP

제안요청 과제분류 및 과제명

세부	수요조사분류	RFP 과제명	지원규모	지원기간	선정예정 과제수
	NICU CDM 활용	생체신호를 이용한 신생아실 환자의 혈압 예측모델 개발	NICU CDM 데이터, 인프라 및 연구 지원		

. 제안요청서

세부/분류	
RFP 과제명	생체신호를 이용한 신생아실 환자의 혈압 예측모델 개발
지원규모 및 기간	○ 사업 기간: ○ 사업비: ○ 선정 과제 수: ※ 사업기간 및 지원 범위는 심의위원회를 통해 조정될 수 있음 ※ 적합한 과제가 없는 경우 선정하지 않을 수 있음 ○ 활용 데이터 - 서울대학교병원 NICU에서 2021.06.02.~2025.06.30. 동안 수집된 1,592명 * 체중, 진단, 검사 결과 등의 환자정보 기반 NICU CDM 데이터 * 광혈류맥파(PPG), 심전도(ECG) 등의 생체신호 기반 NICU CDM 데이터
제안배경 및 필요성	○ 사업 배경 - 전체 신생아 중 고위험(at risk) 신생아의 비율은 약 23%로 매해 늘어나고 있음. - 고위험 신생아는 조산아, 저체중/과체중 신생아, 황노 산모로부터 출생한 신생아로 분류됨.



2025년도 Chest X-ray 영상 이미지를 포함한
CDM 데이터 활용 연구 공모

1. 내용

故 이건희 회장의 경영철학 "인간 존중과 인류 사회 공헌"을 실현하기 위한 기부금으로 운영 중인 소아암·희귀질환 지원 사업단은 희귀질환 어린이 환자들의 진단과 치료, 원인 규명을 돕기 위한 사업을 진행하고 있습니다. 그 일환으로 전국 어린이병원에 CDM을 구축하고 있으며, chest x-ray 영상 이미지를 포함한 CDM 데이터를 활용하는 연구를 공모하고자 합니다. 선정된 연구 과제는 궁극적으로 국제과제 수주로 이어질 수 있도록 추후 협의를 통한 인프라 및 연구 지원이 이뤄질 예정입니다.

2. 일정

	구분	일자	비고
1	소아 CDM 활용 연구 공모 공고	11월 24일	사업단 홈페이지 등
2	공모 신청	12월 1일~ 수시 접수	전자우편을 통한 접수
3	연구과제 공모 선정 심의	매월 정기 심의	선정위원회 구성하여 평가
4	연구과제 공모 결과 안내	매월 정기 안내	개별 통보
5	소아 CDM 활용 연구 진행	추후 협의	사업단 및 연구자

*일정은 변경·조정될 수 있음

3. 활용 데이터 : CDM 및 소아 하기도 감염 Chest X-ray 영상

○ 배경 및 필요성
- 소아 하기도 감염은 국내·외에서 응급실 방문과 입원, 중환자실 치료의 주요 원인으로, 바이러스성 및 세균성 원인이 다양함
- 감염 질환의 계절적 유행과 중증도는 병원·지역 간 차이가 크며, 이를 표준화된 다기관 데이터로 영향 분석할 필요가 큼
- CDM과 의료영상 데이터를 결합하면 질병 부담·자원 소모 분석 및 예후 예측 모델 등의 개발이 가능하여 임상 및 공중보건 정책에 기여할 수 있음

○ 대상 환자군: 18세 미만의 소아 하기도 감염 환자
○ CDM 활용 데이터 범위
- EMR: 수진이력, ICU 입실, 검사결과, 약물, 처치, 활력징후 등

Open-call announcement materials

Collaboration is always welcome

Korea Kids Network

Connecting pediatric data for better child health

7	1.69M	OMOP	ECG · NICU · VitalDB PFT · CXR · Echo
hospitals	pediatric patients	CDM standardized	Multimodal Extension

PI Hee-Soo Kim, MD, PhD · Kwangsoo Kim, PhD

Suhyun Kim

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