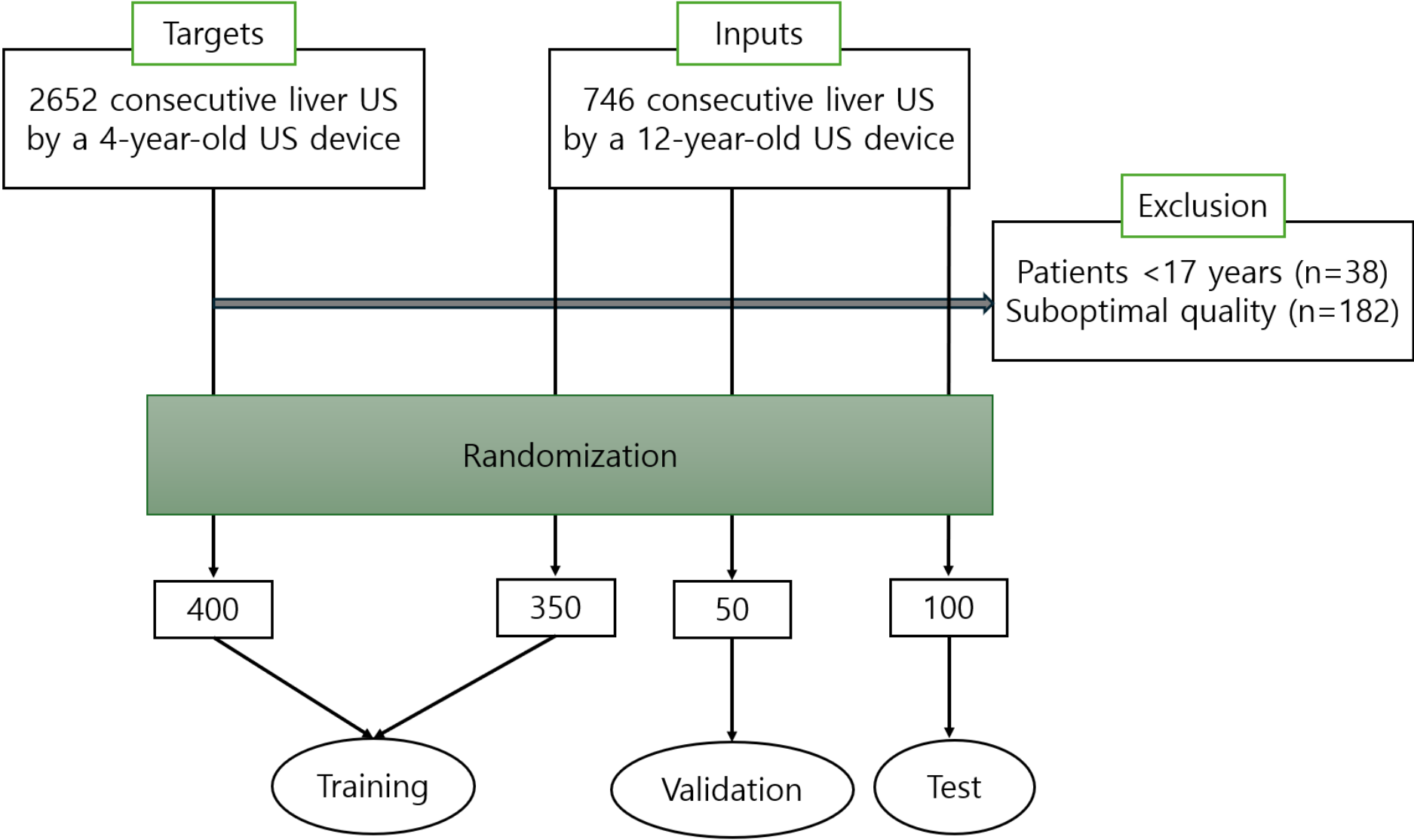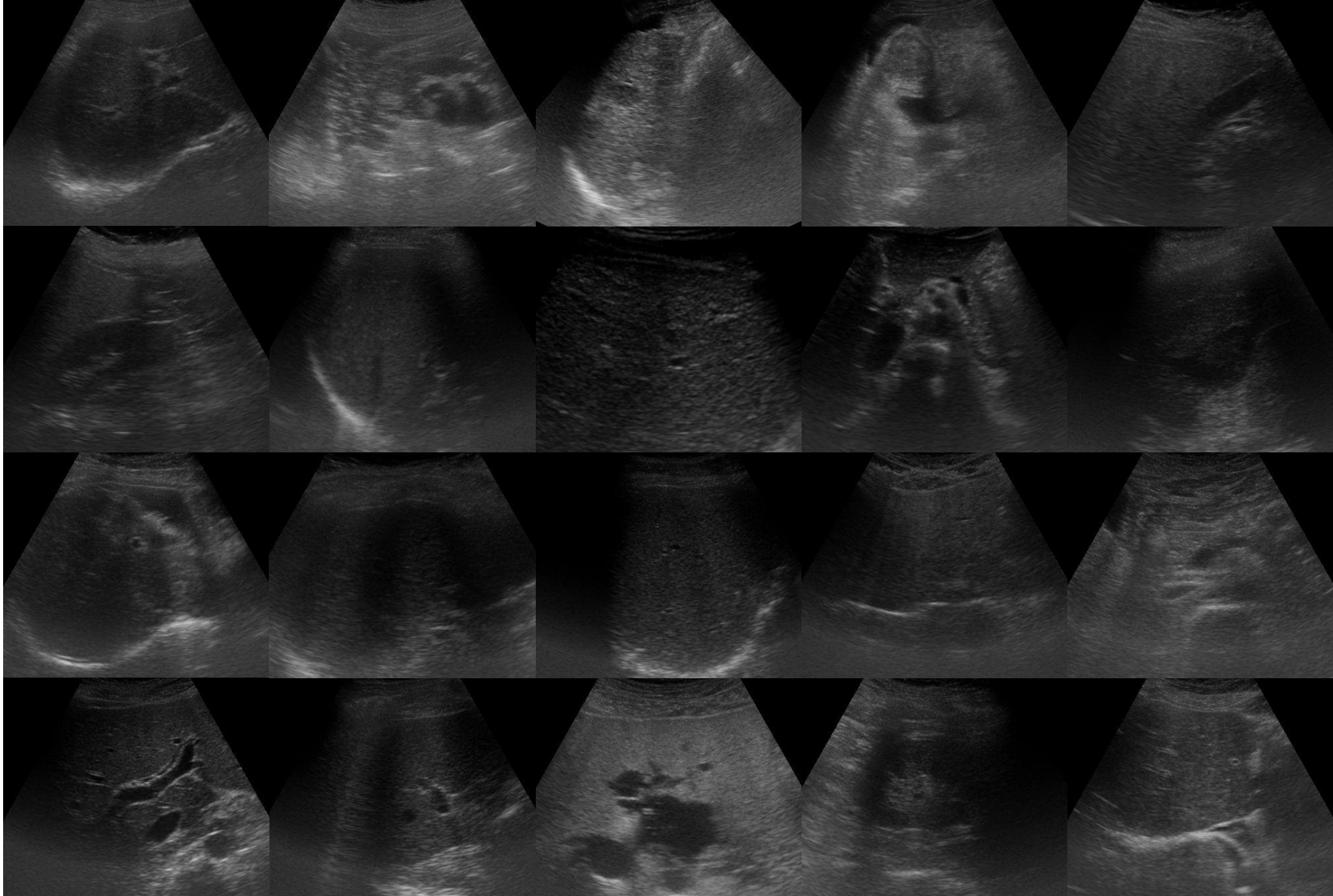# Dataset flow chart

Dataset details

From January to April 2022, we prepared two categories of datasets for training our deep learning-based image quality improvement algorithm, i.e., 1) liver US obtained by a US machine >10 years old, consequently having quality deterioration, served as an input, and 2) liver US obtained by a high-end US machine manufactured within last five years, served as a target (Fig. 1). Basically, all liver ultrasound scans included a minimum of 10 images (ranging from 10 to 38). These images encompassed suitable liver and gallbladder visuals, with no cine clips present. Additionally, all images were acquired using a 1-6 MHz convex transducer. For an input dataset, we randomly selected 500 liver US (training sets: validation sets: test sets = 350: 50:100) from 746 consecutively enrolled examinations from January 2016 to February 2018, performed by a hepatologist with 20 years of experience, using a 12-year-old US system (SSD-alpha 10 Ultrasound System, Aloka Co., Ltd., Japan). For a target dataset, we randomly selected 400 out of 2,652 liver US performed by one of three board-certified abdominal radiologists with more than 15 years of experience (E.S.L., H.J.P., and B.I.C.) from December 2020 to December 2021. All US of target datasets were obtained by a high-end US machine (Aplio i900, Canon Medical Systems, Japan), manufactured within the last 5 years from the date of examination.

Dataset description

Input dataset	
Included number	746
Randomly selected number	500
Training set : Validation set : Test set	350 : 50 : 100
Target dataset	
Included number	2,652
Randomly selected number	400
Exclusion criteria	
Examination for patients < 17 years old (n=38)	
Examinations consisting primarily of color Doppler images (n=3)	
Suboptimal studies according to the Korean Society of Ultrasound in Medicine guidelines (n=179)	

Input dataset
(Low quality)

Target dataset (High quality)