

2019 RSNA Brain Hemorrhage Detection Challenge
Dataset Description

Imaging Modality and Contrast	CT Non contrast-enhanced
Annotation Pattern	<ul style="list-style-type: none"> ● Image level ● Exam level
Annotation methodology and structure	<p>Method of annotation</p> <ul style="list-style-type: none"> ● Semi-automated (First and last slice could be noted, slices in between were interpolated) <p>Annotation output</p> <ul style="list-style-type: none"> ● JSON <p>Annotation software</p> <ul style="list-style-type: none"> ● md.ai <p>Storage, Portability, Interoperability</p> <p>Labels</p> <ul style="list-style-type: none"> ● Normal ● Not normal/no hyperdense hemorrhage ● Subarachnoid hemorrhage ● Subdural hemorrhage ● Epidural hemorrhage ● Intraparenchymal hemorrhage ● Intraventricular hemorrhage ● Incomplete exam ● Needs adjudication ● Ignore series ● Question
Structure nomenclature and standards	<ul style="list-style-type: none"> ● subarachnoid hemorrhage <ul style="list-style-type: none"> ○ RadLex ID: RID4710 ○ http://www.radlex.org/RID/RID4710 ● subdural hematoma <ul style="list-style-type: none"> ○ RadLex ID: RID4706 ○ http://www.radlex.org/RID/RID4706 ● epidural hematoma <ul style="list-style-type: none"> ○ RadLex ID: RID4708 ○ http://www.radlex.org/RID/RID4708 ● intraparenchymal hematoma ● intraventricular hematoma
Data use agreement/licensing	Non-commercial purpose
Imaging file and structure set format	DICOM - metadata/tags (based on individual task)
Slice thickness (in mm)	5mm
Image Characteristics	<p>Image Plane - Axial only</p> <p>Resolution - 512 x 512 original</p> <ul style="list-style-type: none"> ● Original for at least one site

	<ul style="list-style-type: none"> Downsampled/re-sampled to 5mm for one site Pre-processing <ul style="list-style-type: none"> Not performed by sites submitting data Burned-in PHI <ul style="list-style-type: none"> CTP Anonymizer and other programs used
Other scanner and acquisition parameters, e.g. MRI field strength	Did not retain the manufacturer, model information
Labeler demographics	<ul style="list-style-type: none"> 60 ASNR members, neuroradiologists Junior and senior Annotators anonymous Agreement/disagreement - Contradictory labels were either corrected through adjudication or removed as part of the curation process. Single annotation for training and validation data. Triple annotation for test set. <ul style="list-style-type: none"> Majority rules Conflict resolved by adjudication Scope of annotation - multi-institutional, multi-national
Responsibilities quality, safety, privacy	<ul style="list-style-type: none"> Quality and privacy of HPI were assured by the three institutions submitting the images Quality was also assured by allowing annotators to flag cases that were of the wrong body part, poor quality, wrong imaging plane
Monetization	Data is released under a non-commercial license
Reference	<p>Flanders AF, et al. Construction of a machine learning dataset through collaboration: the RSNA 2019 brain CT hemorrhage challenge.</p> <p>https://pubs.rsna.org/doi/10.1148/ryai.2020190211</p>