

SCORCH MEETING 2021

Session I: The Pediatric Radiology Workplace

PEDIATRIC TELERADIOLOGISTS: WHO WE ARE AND WHAT WE DO

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DISCLOSURE

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TOPICS

- Why do facilities consider pediatric teleradiology services?
- What are some challenges associated with startup for sites and the teleradiology service?
- Workforce: What are the benefits to work as a pediatric teleradiologist; retention and turnover?
- Types of service: Subspecialize, final reads, preliminary reads, time of day etc.
- Quality: How it is promoted and measured.
- Challenges/solutions in maintaining a teleradiology practice.



THE CLIENTS

- Individual Free standing Children's Hospitals
 - Tend to be the smaller ones, but not always.
- Children's Hospitals with multiple sites
- General hospitals with a pediatric focus
- Academic and community models



THE CLIENTS: TELERADIOLOGY BENEFITS

- Efficiency
 - Not worth sacrificing an FTE for <50 cases/night for example.
- Better QOL for staff radiologists, keeps key people on the “day shifts” for reading, teaching, consults, etc.
- Subspecialty expertise.
- Help deal with periods of understaffing.



THE CLIENTS: START UP CONSIDERATIONS

- Determining that pediatric teleradiology is appropriate
- Determining desired coverage hours, costs vs benefits
- Getting buy-in from medical staff and administration
- Determining who is paying for the service
- Consider impact/integration of residents/fellows
- Selecting specific teleradiology provider
- Legal stuff: LOI and contract
- IT set up
- Licensing and credentialing the readers
- Training the techs to use the system



WHO WE ARE

- Fellowship trained US based pediatric radiologists willing to work remotely
- Support staff



SUPPORT STAFF

- Administrative Director
- QA manager
- Scheduler
- Several CSR's (Clinical Support Reps)
- IT personnel
 - computer equipment purchasing/set up
 - network and platform maintenance
 - 24/7 support
- Legal department
- Recruiters
- Credentialing/licensing specialists

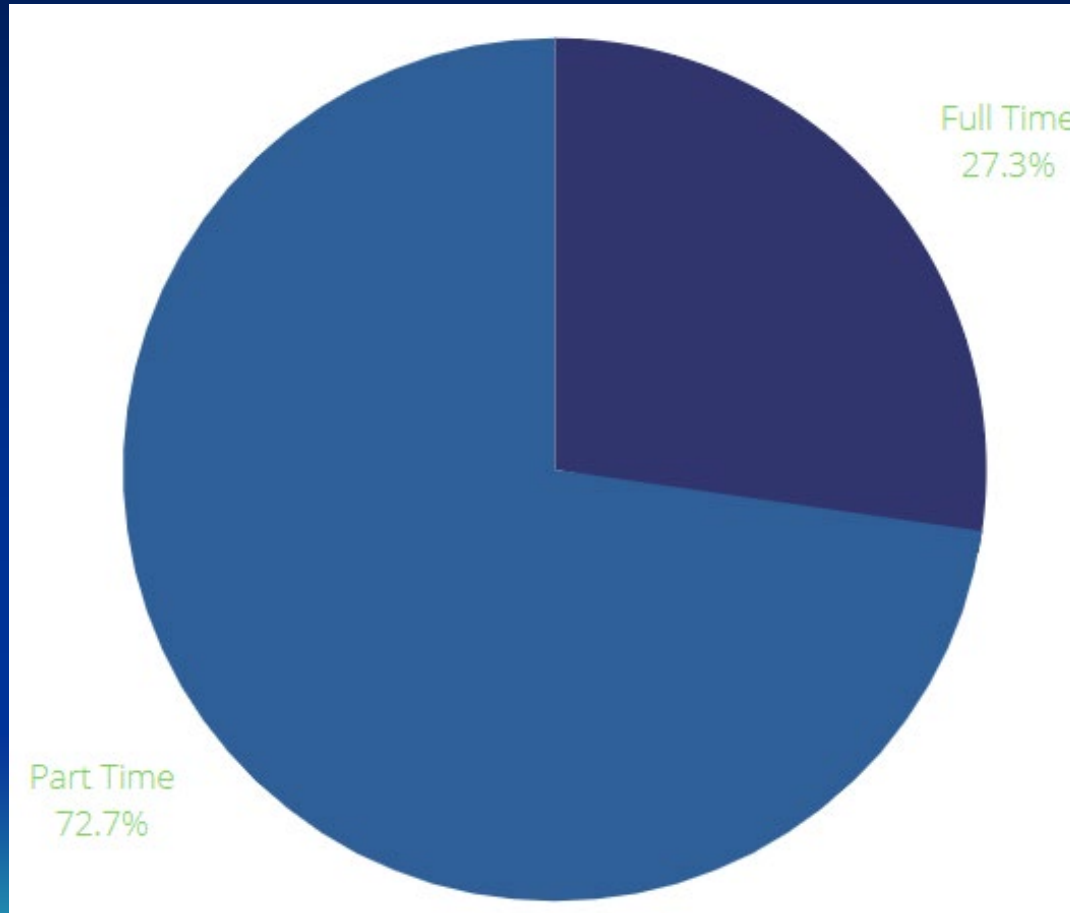


THE WORKFORCE: FELLOWSHIPS

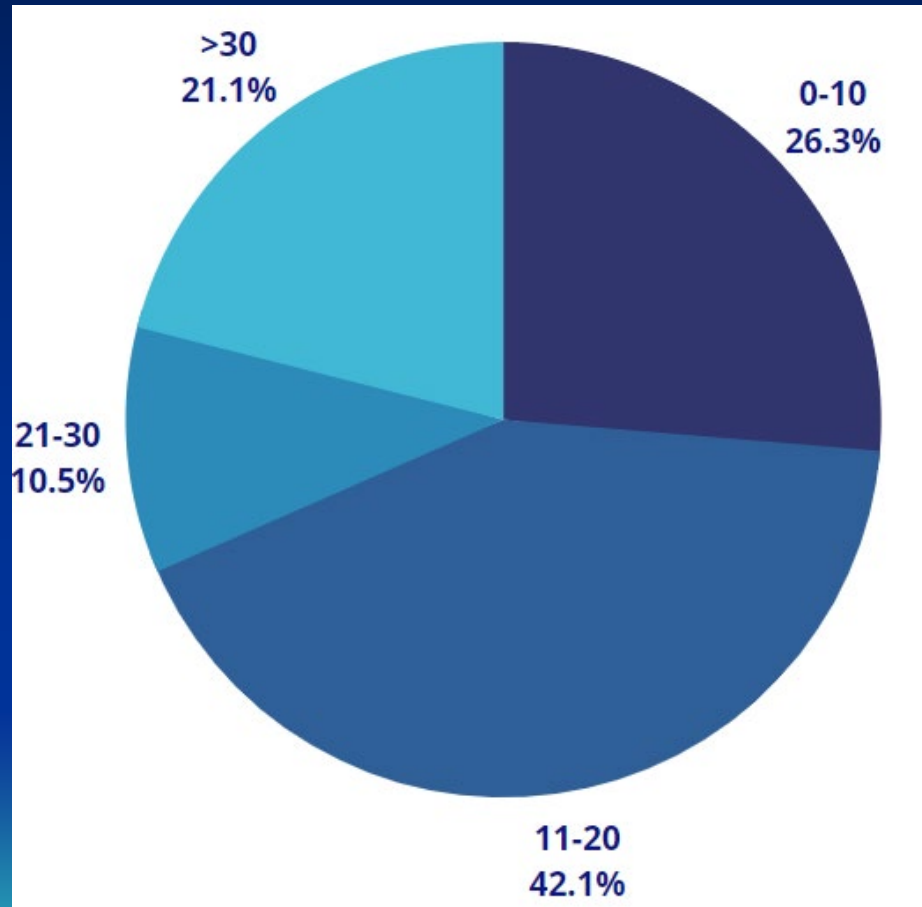
- Pediatric teleradiologists are highly trained, interchangeable with onsite radiologists at the major children's hospitals.
- Examples from ePRA (Envision Pediatric Radiology Alliance)
 - CS Mott (3), Cincinnati (2), Lucile Packard (2), Loma Linda (2), UCSF, UCSD, Vanderbilt, St. Louis, CHOP, Seattle, Miami, Lurie, DC National, Riley, Columbia



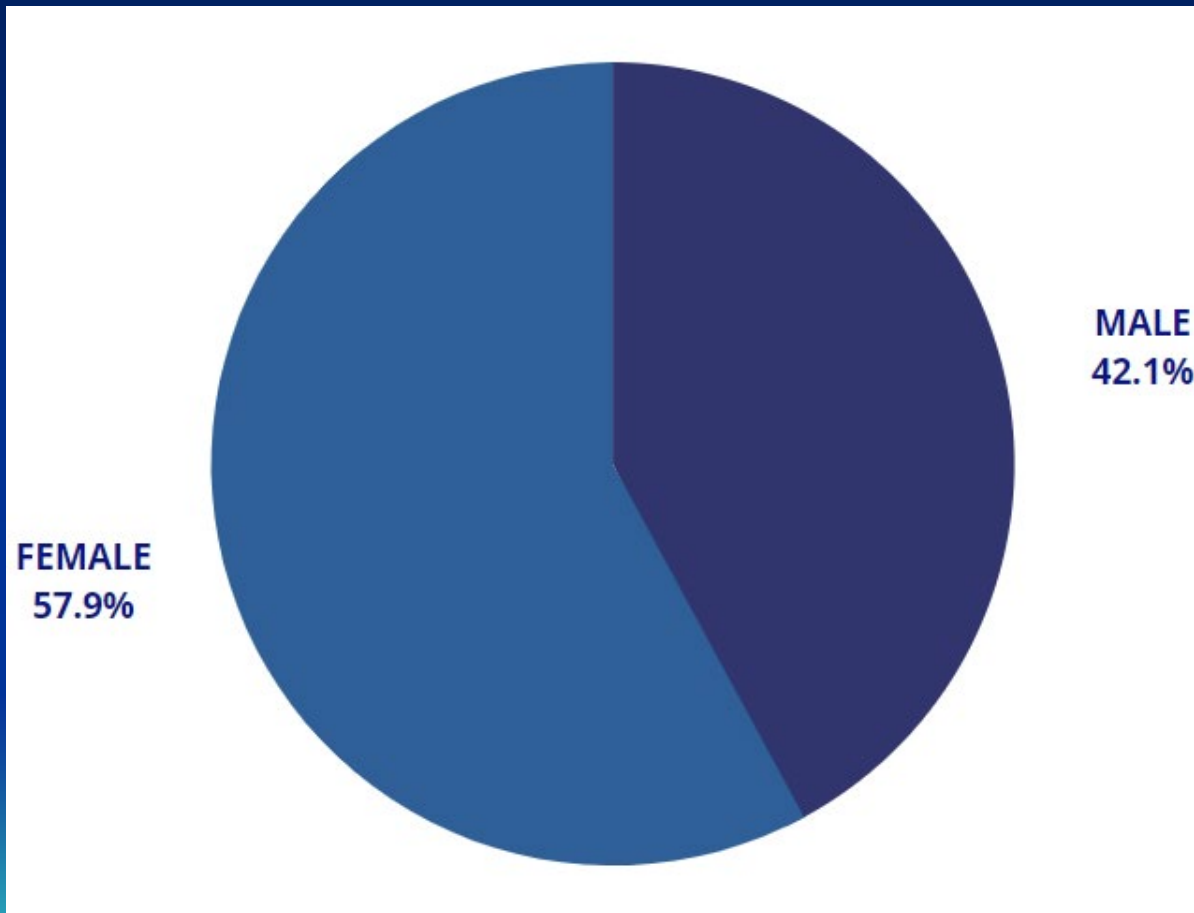
THE WORKFORCE: FULL TIME/PART TIME



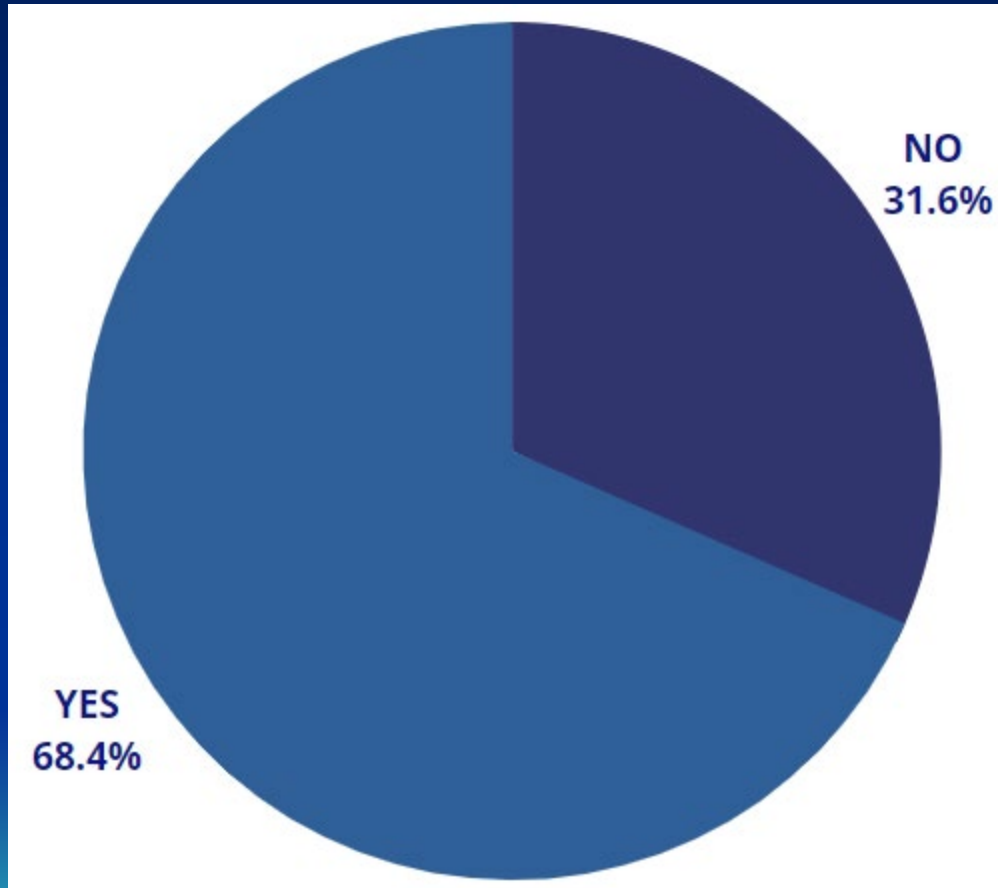
THE WORKFORCE: YEARS POST-FELLOWSHIP



THE WORKFORCE: GENDER



THE WORKFORCE: KIDS AT HOME

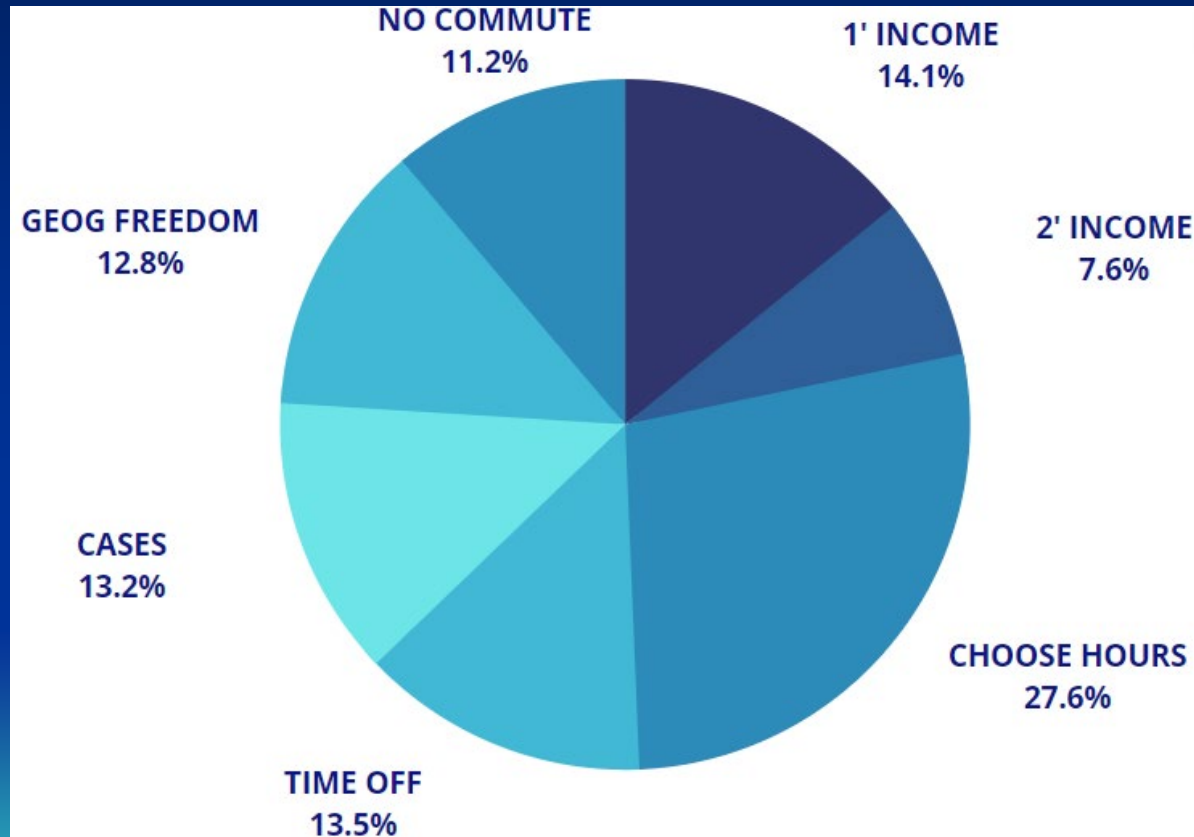


THE WORKFORCE: KIDS AT HOME AND OTHER FAMILY RESPONSIBILITIES

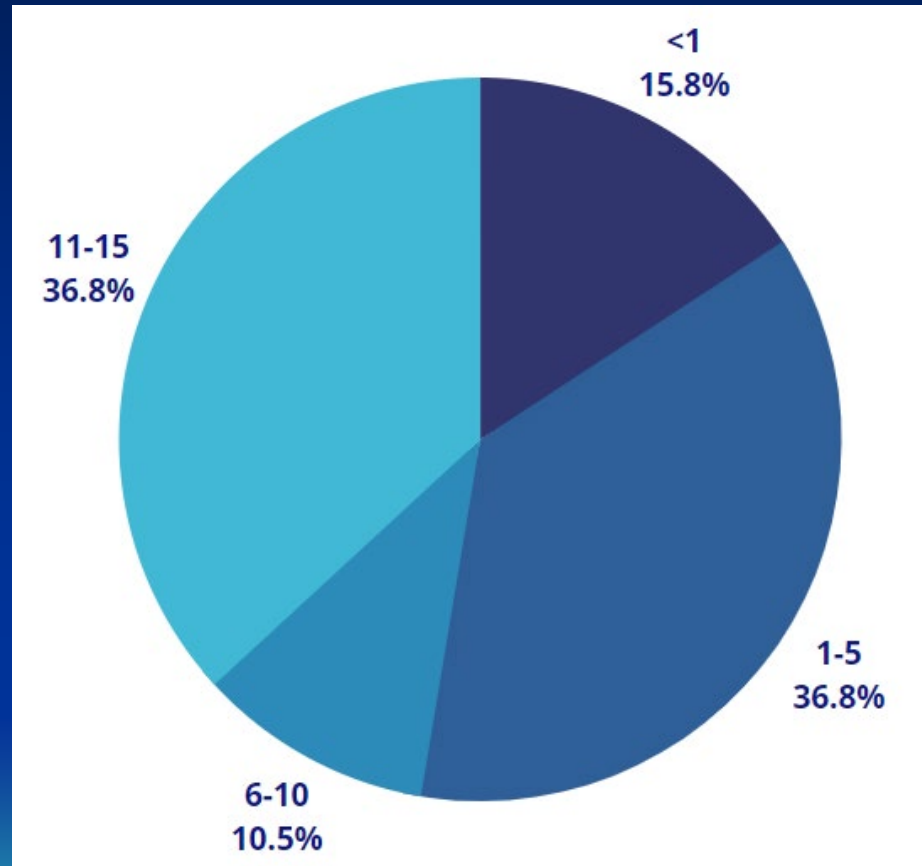
- Having children at home is a major factor in choosing this career path.
- “Being present during their lives has been the greatest reward imaginable.”
- Other obligations included elderly parents, disabled sibling and “No children, but my dog has loved having me around!”



THE WORKFORCE: KEY FACTORS IN CONTINUING TELERAD CAREER



THE WORKFORCE: LONGEVITY OF SERVICE



THE WORKFORCE: FACTORS AFFECTING RETENTION

- Remuneration
- Burn out due to stress of the work or the overnight hours
 - The most lucrative hours are the hardest to work
 - Longest tenure in overnight shift = 4 years
- Desire to return to hospital-based practice
- Released by the teleradiology company for performance issues (rare)



WHAT WE DO – CASES MIX

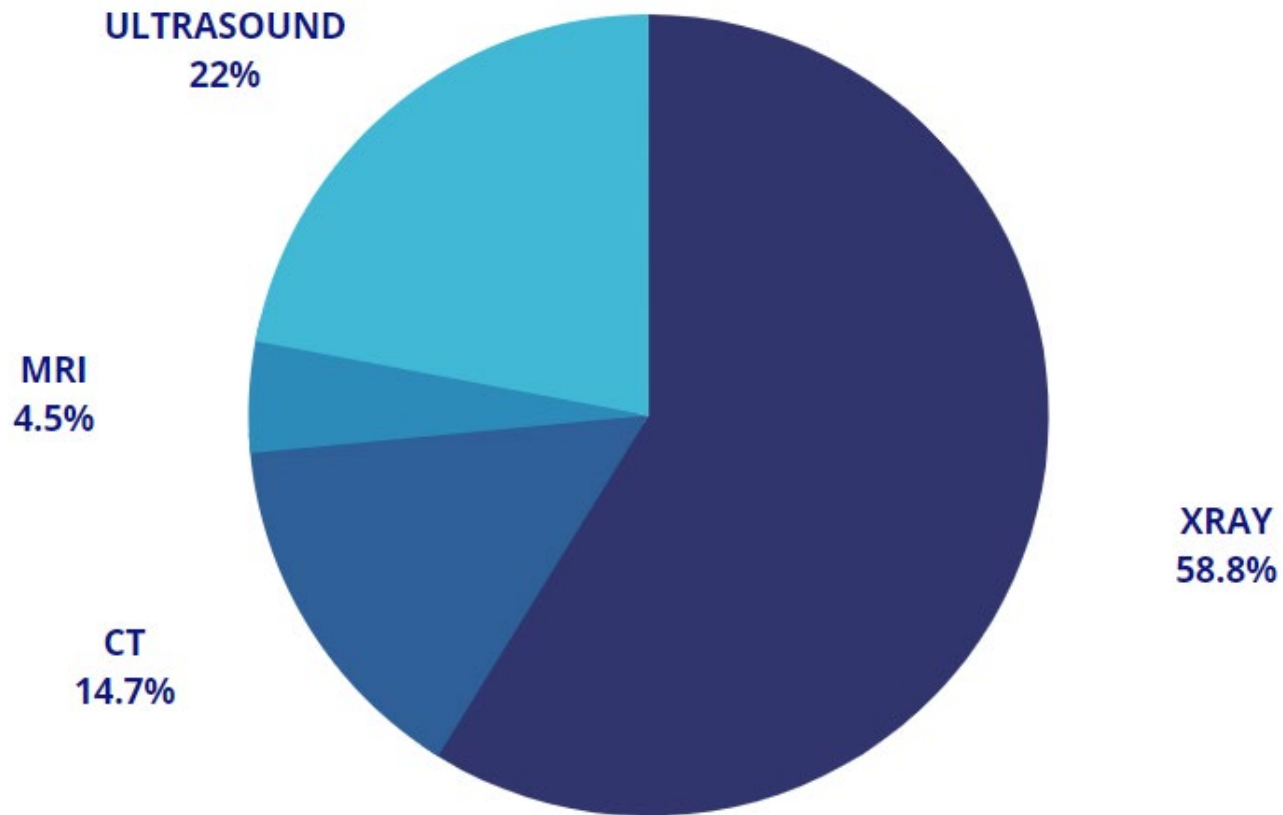
- It's not just plain films and emergency ultrasound!
- Many clients submit all cases from inpatients, subspecialty elective imaging.
- Some small children's hospitals and general hospitals with peds lack onsite pediatric radiologist, send all pediatric cases 24 x 7.
- Trend: more final reads, less prelims.



TYPES OF CASES BY REPORT TYPE

	June 2021	August 2021
Preliminary	52%	37%
Final	48%	63%

WHAT WE DO



TYPES OF CASES BY PERCENT

	XR	US	CT	MR	TOTAL
ED	56	6	8	1	71%
NICU	4	1	<1	<1	5%
OTHER INPATIENT	4	6	1	3	14%
OUTPATIENT	2	6	<1	3	11%

TYPES OF CASES BY URGENCY, TAT GOALS

August 2021		
Stroke	20m	0.07%
STAT	30m	90.3%
Clearance	60m	1.4%
Expedited	4h	0.1%
Routine	24h	8.1%

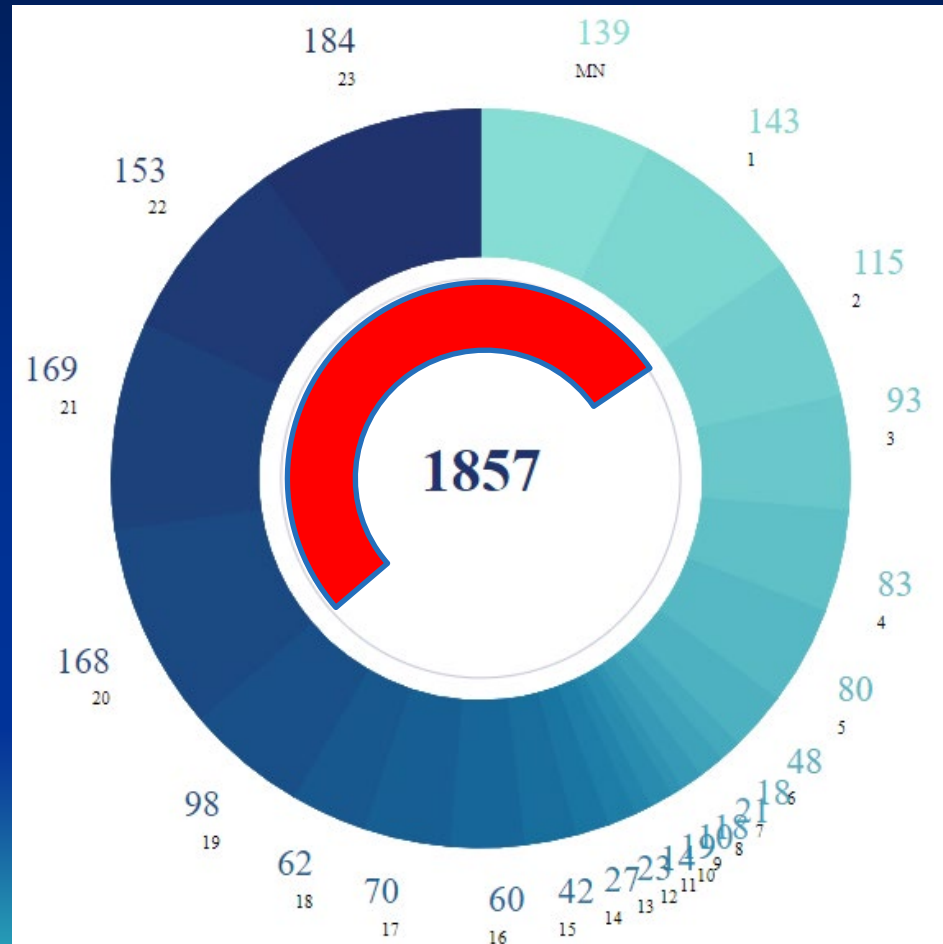
MONTHLY CASE VOLUME

Total Volume							
	Jan -21	Feb -21	Mar -21	Apr -21	May -21	June-21	July-21
Total Volume	4144	3733	4732	4937	5821	6144	8369
CR	2264	2151	2693	2877	3529	3606	4923
CT	827	642	813	848	1030	1042	1228
MR	82	99	86	77	106	234	374
NM	0	0	1	0	0	2	1
US	971	841	964	1000	1035	1260	1843



HOURLY CASE VOLUME

(SAMPLE WEEK JULY-AUG 2021)



HOW HAS PANDEMIC AFFECTED TELERADIOLOGY?

- Volume per facility mostly a reflection of number of ED visits, so dropped during early 2020 and then normalized.
- Delta variant now in pediatric population so modest increase.
- Shortage of pediatric radiologists has led to adding new clients. Has pandemic contributed to shortage? Early retirements?
 - Price of housing in some markets may be hampering onsite recruitment.
- Possible increased interest in doing remote work to avoid Covid.
- Decreased overnight in house coverage by residents/fellows?



MONTHLY CASE VOLUME



CHALLENGES OF READING REMOTELY

- Cases come at a rapid rate with relatively short TAT expected.
- Complex cases may take 20 minutes to read due to the pathology and due to logistics.
 - MRI with priors
 - US with dozens of cines
 - Examples: Brain tumor followups, MSK MR postops, MRE with prior, MR Appy, transplant patients
- Provided histories sometimes inadequate.
 - No access to EMRs or time to be detective.
- Dependent on facility to send pertinent prior studies.
- Unfamiliarity with sonographers, level of trust.



OUR STRATEGIES

- Read as rapidly as possible while maintaining quality.
- Read prelims and finals all the same.
- Call all critical results to clinical team and discuss complicated cases.
 - Support staff facilitates communication
- Try to triage the cases on the list.
- Discuss difficult cases with each other.



COMPENSATION MODEL

- Full time radiologists (1440 hours/yr)
 - Scheduling
 - Salary
 - Bonus structure
 - Benefits package
- Part time radiologists
 - Per click compensation
 - Assign RVU values
 - Assign \$/RVU
 - Minimum hourly payment rate



QUALITY CONTROL

- Tight oversight of quality. Feedback!
- Internal peer review process and submitted cases with quality concerns.
- Disadvantages to teleradiologist
 - First reader disadvantage.
 - Access to full patient information.
- Educational opportunities and take home messages.
- Disciplinary action.



QUALITY CONTROL

- Evaluation methods:
 - Peer review generated by platform
 - Cases assigned to each radiologist per shift
 - Submitted QA concerns from facilities
 - All reviewed and replied
- Radpeer results (Jan-Mar 2021):
 - 12608 cases
 - 2A: 16 (0.127%)
 - 2B: 13 (0.103%)
 - 3A: 1 (0.008%)
 - 3B: 5 (0.040%)



PEDIATRIC TELERADIOLOGY QUALITY

Discrepancy rates of preliminary and final reports for after-hours pediatric teleradiology interpretations

Cory M Pfeifer, Mary L Dinh

February 11, 2021 <https://doi.org/10.1177/2058460121989319>

- 8778 consecutive reports at 400 bed hospital over 30 mo.
- The overall actionable discrepancy rate was 1.6%.
 - There were no significant differences in the actionable discrepancy rates among teleradiologists.
 - There was no correlation between years of experience and discrepancy rate for either the teleradiologists or the final raters.
- Pediatric teleradiologists issue reports that mirror discrepancy rates typical of adult teleradiologists.



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	Exams	Total discrepancy rate (95% CI)	Actionable discrepancy rate (95% CI)
CT			
Abdomen	1083	0.240 (0.215–0.266)	0.031 (0.021–0.042)
Chest	63	0.254 (0.146–0.361)	0
Extremity	41	0.146 (0.038–0.254)	0.049 (0–0.115)
Face	681	0.163 (0.135–0.191)	0.019 (0.009–0.029)
Head	2938	0.155 (0.142–0.168)	0.016 (0.011–0.020)
Neck	272	0.221 (0.171–0.270)	0.018 (0.002–0.034)
Spine	544	0.118 (0.091–0.145)	0.015 (0.005–0.024)
MRI			
Brain	69	0.290 (0.183–0.397)	0.029 (0–0.069)
Spine	31	0.161 (0.032–0.291)	0.032 (0–0.095)
Abdomen	2	0	0
Extremity	2	0	0
Ultrasound			
Abdomen	297	0.141 (0.102–0.181)	0
Abd limited	1616	0.078 (0.065–0.091)	0.011 (0.006–0.016)
Chest	50	0.100 (0.017–0.183)	0
Extremity	129	0.194 (0.126–0.262)	0.016 (0–0.037)
Head	142	0.099 (0.050–0.148)	0.007 (0–0.021)
Pelvis	226	0.062 (0.031–0.093)	0.004 (0–0.013)
Scrotum	150	0.133 (0.079–0.188)	0.020 (0–0.042)
Vascular	134	0.090 (0.041–0.138)	0.007 (0–0.022)
Radiographs			
Abd chest	141	0.121 (0.067–0.174)	0.021 (0–0.045)
Extremity	167	0.084 (0.042–0.126)	0

Table 1. Discrepancy rates by exam type.



PEDIATRIC TELERADIOLOGY QUALITY

The clinical usefulness of teleradiology of neonates: expanded services without expanded staff

T. L. Slovis & P. R. Guzzardo-Dobson

Pediatric Radiology volume 21, pages 333–335 (1991)

- Interpretations via teleradiology were made in 4200 examinations and taken as the final reading for an off site high level NICU.
- There was a 98% agreement between the interpretations made using teleradiology and those made on site.
- In no instances of the 2% (20 cases) in which there was disagreement between readings did the difference have clinical significance.



CHALLENGES FACED BY ALL TELERADIOLOGY PROVIDERS

- Recruitment and retention of readers
- Acquiring and maintaining facility contracts
- Recruitment and retention of support personnel
- Maldistribution of work
 - Have to cover even during times of low volume
 - Have to staff adequately during times of high volume
- Being independent vs being part of a larger physician services company



CHALLENGES FACED BY PEDIATRIC TELERADIOLOGY PROVIDERS

- Fewer potential readers.
- Providing coverage for cases spanning all modalities and organ systems, difficult for readers coming from academic subspecialized environment.
- Pediatric radiologists often want to be “hands on”.
- Fewer potential facilities per state, so need more licenses per volume.
- High level attention to quality by onsite radiologists and clinicians.



CHALLENGES - ONGOING

- Keeping readers happy. Watch for burnout.
- Matching volume to readers. Keep recruiting as needed.
- Maintaining high quality reads and targeted TATs.
- Maintaining support staff. They also have burnout.
- Rational growth of company.
- Having enough volume to offset the overhead, being profitable.



SOLUTIONS TO THE CHALLENGES

- Good salary and benefits for full time, high percentage of revenue per case for part timers.
- Encourage interaction with the clinical teams, be as hands on as you can be while being remote – must be efficient.
- Promote quality by providing feedback on any errors; and sharing common pitfalls and educational materials.
- Provide workhours that are as flexible as possible while maintaining coverage.
- Maintain adequate financial resources for thin margin business.

