Coverage for Li-Fraumeni syndrome whole body MRI

*[Insert policy info here]*

To Whom It May Concern:

This letter is written on behalf of [*patient name]* regarding the decision to deny coverage for whole body MRI (wbMRI). Know that sufficient evidence exists that whole-body MRI is necessary for optimal care and should be covered.

LFS is a rare hereditary cancer predisposition syndrome caused by germline mutations in the *TP53* gene. While the most frequently occurring cancers in LFS include sarcoma (soft-tissue and osteosarcoma), adrenocortical carcinoma, brain tumors, and early-onset breast cancers, risks for other cancers such as those of the thyroid, kidney, lung, gastrointestinal tract, and leukemias, among others, are also increased. It is widely recommended that individuals with LFS undergo comprehensive cancer screening including whole-body MRI, brain MRI, breast MRI, mammogram, bloodwork, abdominal sonogram, and upper and lower endoscopy for detection of cancers at early stages when they are most treatable and offer the best survival outcomes. **It has been demonstrated that wbMRI is key to early cancer detection in this population1.**

**Nearly 100% of individuals with LFS will develop cancer over their lifetimes**, many of them during childhood and early adulthood2. In addition, **individuals with LFS have a high risk of developing multiple different cancers**, with approximately 50% of those who survive their first cancer going on to develop a second2. A 2010 analysis of 105 Dutch families with LFS found a 4-fold relative risk for developing cancer in these families compared with the population rate3.

**With the above-mentioned risks, LFS is a syndrome in which cancer surveillance is unequivocally justified.**A recent meta-analysis of wbMRI-based surveillance in individuals with LFS demonstrates that baseline wbMRI identified asymptomatic cancers in 7% of the patients undergoing screening, illustrating the feasibility of early cancer detection in LFS1. The 35 cancers detected in 34 individuals described were all detected with wbMRI; no other screening modalities were analyzed in this study. A recent UK study detected malignant neoplasms in 14% of individuals with LFS at their baseline wbMRI suggesting that the detection rate for new malignancies with wbMRI may be higher in some populations4. Viliani et al analyzed 10 years of follow-up of a cohort of LFS patients; **of the tumors detected through screening, approximately 28% of malignant tumors were detected by wbMRI. wbMRI detected a higher proportion of malignant tumors than any other modality in the LFS screening protocol5.** Furthermore, several recent analyses among patients with LFS have found over-diagnosis and unnecessary treatment of indolent lesions to be uncommon6-8.

**Pre-symptomatic cancer surveillance has been found to be cost-effective for patients with LFS and germline *TP53* pathogenic variants** with a mean cost of $117,102 and 27 life years for surveillance with wbMRI compared to a mean cost of $46,496 and 23 life years for a non-surveillance approach8. When measured against the commonly accepted willingness-to-pay threshold of $100,000 per life-year gained by third-party insurers, **the surveillance strategy that includes wbMRI has a 98% probability of being the most cost-effective option for early cancer detection for individuals with LFS and one that improves clinical outcomes9.** Furthermore, the ability to screen for multiple cancers with a single examination in patients with LFS not only reduces the number of individual imaging tests required, but also the number of patient visits to an imaging service, thereby reducing related costs10,11.

The Li Fraumeni Syndrome Association’s board of directors and its medical advisors have determined there is sufﬁcient evidence to recommend that in addition to regular physical exams and other investigations, that all patients diagnosed with Li-Fraumeni syndrome (LFS) receive annual rapid wbMRI scans.

There is increasingly robust evidence demonstrating the reduction in cancer-related mortality and improved survival associated with wbMRI for LFS5. We believe the body of evidence demonstrating the feasibility of wbMRI to detect early resectable cancers in LFS patients is more than sufficient to support the coverage of wbMRI for [*patient name*]. The CPT code(s) used for billing are [*CPT code(s)*]. If you have any questions regarding this request or need further information please contact us at [*contact information*].

Sincerely,

[*Name*]

 References

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