Methodology

Supported by The Pew Charitable Trusts and the Gordon and Betty Moore Foundation, this study comprised three phases: qualitative interviews, a quantitative survey, and an in-person convening.

During the first phase, SSRS conducted a total of 33 one-on-one interviews, 28 with hospital-based participants in leadership, radiology, and tech positions, and five with AI imaging developers. Ten interviewees represented institutions in the South, eight in the West, and five each in the Midwest and Northeast; 15 hospitals were urban, 10 suburban, and three rural; 14 had 500 or more beds, 12 had 200 to 499, one had 100 to 199, and one had fewer than 100. While care was taken to recruit only one interviewee per hospital, we cannot be certain that this was the case because personally identifiable information was not shared after interviews were conducted.

During these interviews, we learned that 25 hospitals were using AI-enabled imaging tools. Out of these, 12 hospitals used FDA-approved or cleared algorithms only, six used homegrown or proprietary algorithms only, and seven used both types. Five interviews were conducted with AI imaging developers that create and market algorithms to hospitals and medical facilities. All respondents were referral contacts from Pew.

In the second phase, Pew and SSRS, in consultation with a technical advisory group, developed a questionnaire using findings from the qualitative interviews. SSRS programmed the survey into the Confirmit platform for web administration and formatted a paper version of the survey to be mailed. Before the full launch of the survey, SSRS conducted 10 cognitive pretest interviews. While limited in scope, the pretest aimed to collect feedback from respondents from varied hospital settings, locations, and sizes. After the pretest interviews, SSRS and Pew revised and refined the paper and web survey instruments, adding definitions, clarifying questions, and making answer options more applicable to respondents.

The sample for the study was drawn from a list of acute hospitals in all 50 states and the District of Columbia, provided by Integrated Medical Data. The total sample comprised 3,300 records, released in two waves of 1,650 records each. Respondents were recruited via postal mail and email. The name of the chief medical officer was appended to the sample. When the name of the chief medical officer was available, correspondence was addressed to them; otherwise communication was sent to the generic title of "Chief Medical Officer." Recipients were encouraged to engage colleagues to complete the survey. The first mailing included a $50 noncontingent check pre-incentive and the final mailing included a $10 noncontingent cash pre-incentive. Data collection started May 17 and concluded Aug. 11, 2022. During this time, a total of 491 surveys were completed. The response rate for this study is 15.8% (AAPOR2) and the margin of error on the total sample is +/-4.4 percentage points.

Data from the quantitative survey was weighted to represent the sampling frame drawn from a list of acute care hospitals, including teaching/academic hospitals, community hospitals, and government-owned hospitals, in all 50 states and D.C., provided by Integrated Medical Data. Data was weighted to distributions of teaching hospital by bed count, region, specialty, physician count, availability of email, urbanicity, and presence of core-based statistical area. Weights were trimmed

at the 2nd and 98th percentiles to prevent individual interviews from having too much influence on survey-derived estimates.

A total of 491 survey respondents answered the survey. From these responding hospitals, 62% of the respondents were chief medical officers (CMOs). Hospitals that are AI users had their CMOs respond at a significantly higher rate than those that are not AI users (68% versus 56%). Others who responded to the survey included medical staff presidents, chiefs of staff, chiefs of radiology, chiefs of surgery, and former CMOs. The majority of the respondents completed the survey independently (66%). Those who consulted someone else consulted with the chief of radiology (18%) or some other personnel (16%).

Pew then hosted the convening in its Washington, D.C., offices Nov. 1 and 2, 2022. Thirty-four participants included AI researchers and developers, government regulators, and health system administrators and physician end users familiar with the evaluation, implementation, and monitoring of AI software in radiology. Breakout groups were organized using five components of the AI product life cycle: model development, product review, procurement, implementation, and post-deployment monitoring.

The groups were charged with identifying current gaps and needs at their checkpoints and making recommendations to fill those gaps. The entire group was then convened, and the recommendations were synthesized into a framework with action items for use by developers, institutions, and end users to supplement the regulatory process for safe and effective AI development and clinical use of AI for diagnostic imaging.

Limitations
The goal of the survey was to establish a baseline. It is important to note that some of the subgroups reported are too small to be statistically valid and results should be treated with caution.