Supplementary Figures

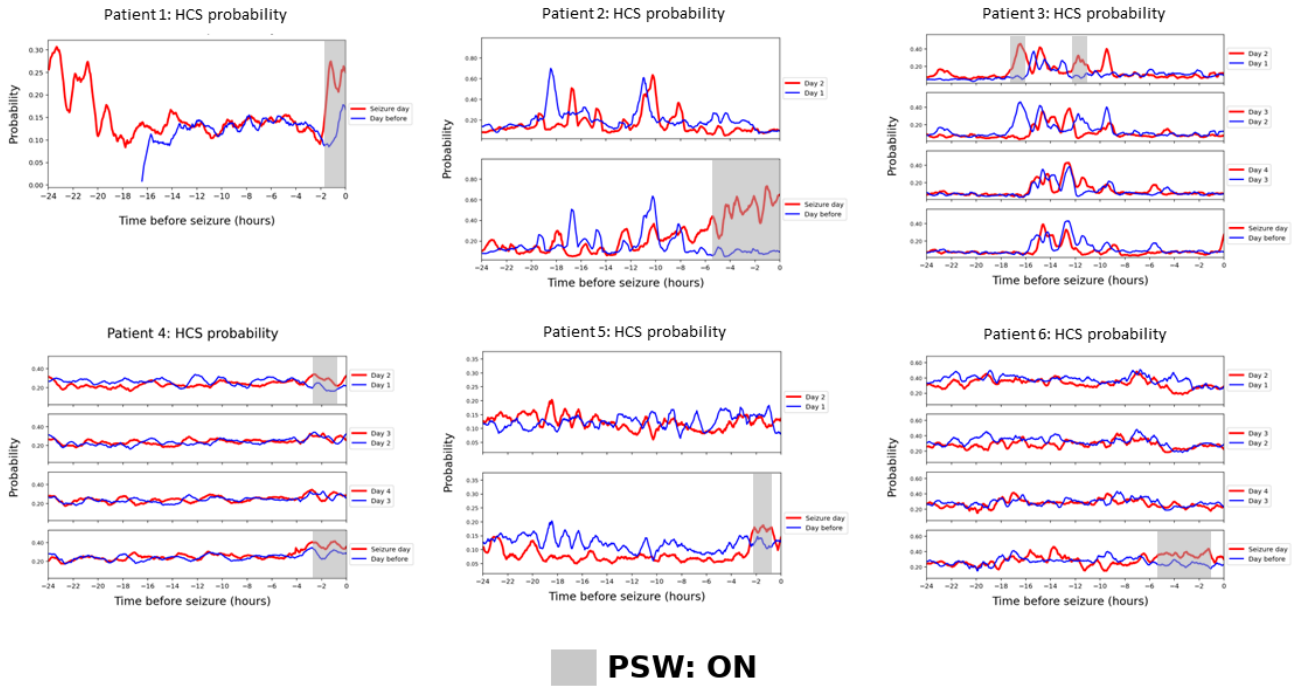

Fig. S1. Standalone HCSp in preictal-period identification (Patients 1-6). Temporal evolution of the high-connectivity state probability (HCSp) during the 24 hours preceding seizure onset (or time-matched windows on preceding days) for Patients 1-6. For each patient, subplots are stacked chronologically from top to bottom; the lowest panel contrasts the seizure day (red) with the immediately preceding day (blue). Gray shaded regions indicate PSW ON intervals. This single-feature configuration was insufficient for reliable detection across the full cohort (see also Fig. S2): across all 14 patients it correctly identified the preictal period in only 9, with a mean false-alarm time-in-warning of 7% (SEM 3.74%, SD 5.2%).

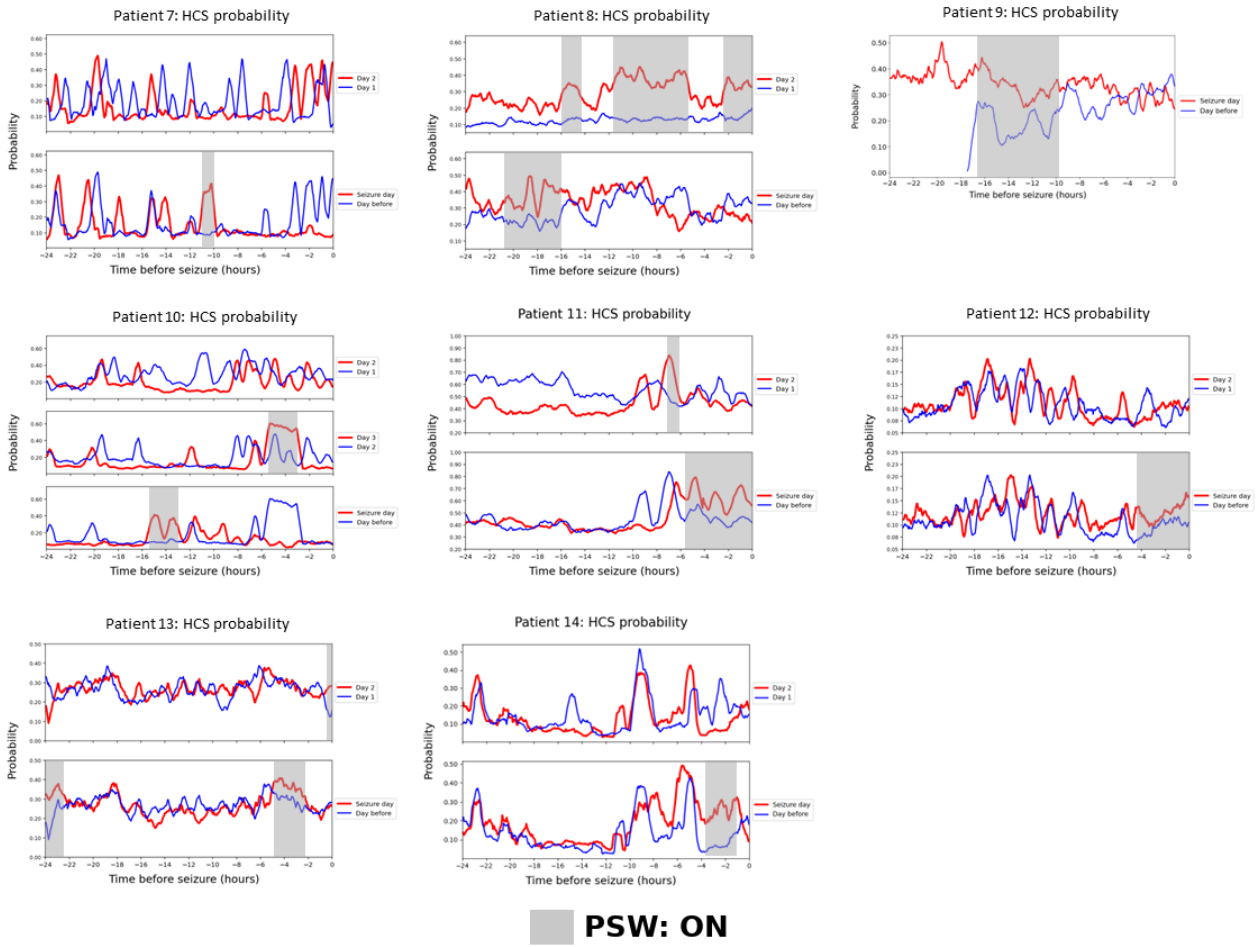

Fig. S2. Standalone HCSp in preictal-period identification (Patients 7-14). Continuation of Fig. S1 for Patients 7-14, under the same standalone HCSp configuration and the same plotting conventions (chronologically stacked days; seizure day in red versus preceding day in blue in the lowest panel; gray shaded regions indicate PSW ON intervals). Together, Figs. S1 and S2 illustrate the limitations of the single-biomarker configuration across the cohort, including the patients in whom the preictal period was missed (e.g., the seizure-day panel shows no PSW ON interval).

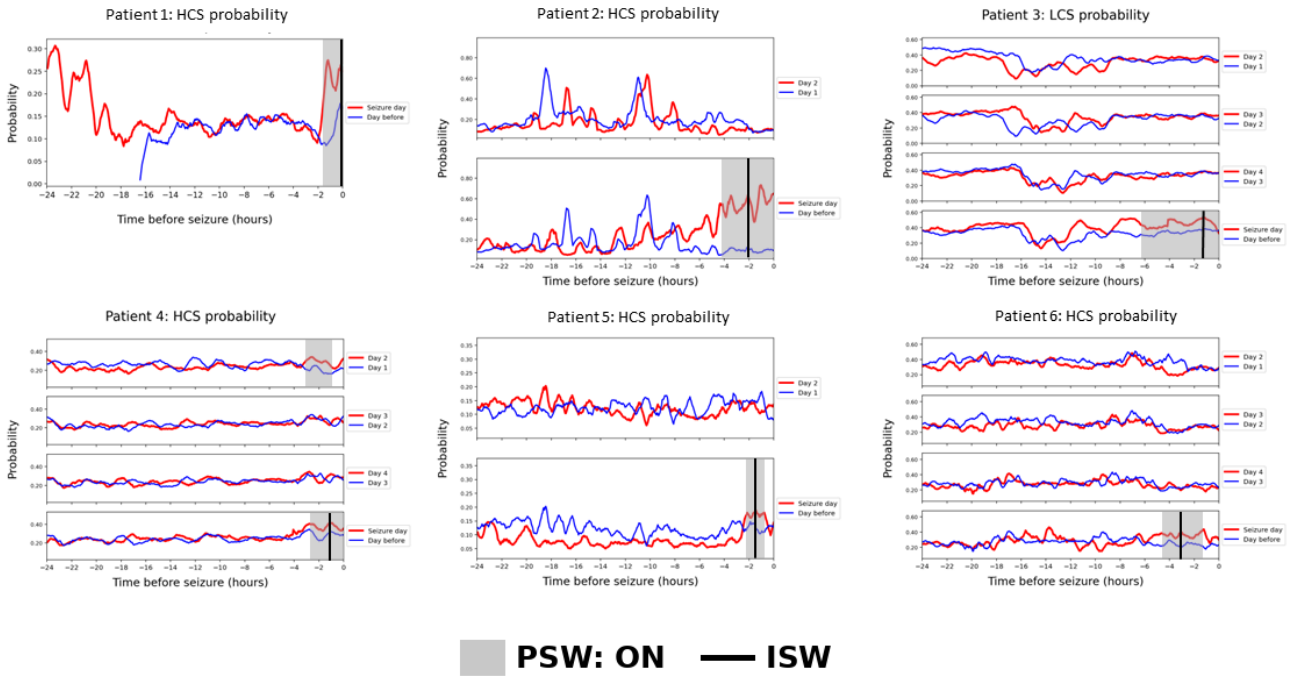

Fig. S3. Updated patient-specific configuration (Patients 1-6). Temporal evolution of the selected patient-specific connectivity-state probability --- HCSp, ICSp, or LCSp, as indicated in each panel title --- during the 24 hours preceding seizure onset for Patients 1-6, under the updated multi-biomarker configuration with multi-day benchmarking. Plotting conventions follow Fig. S1. The solid vertical black line denotes the execution time of the imminent seizure warning (ISW). Compared with the standalone HCSp configuration (Figs. S1-S2), this patient-tailored selection, combined with the multi-day benchmark, suppresses false-positive warnings during interictal periods (see also Fig. S4).

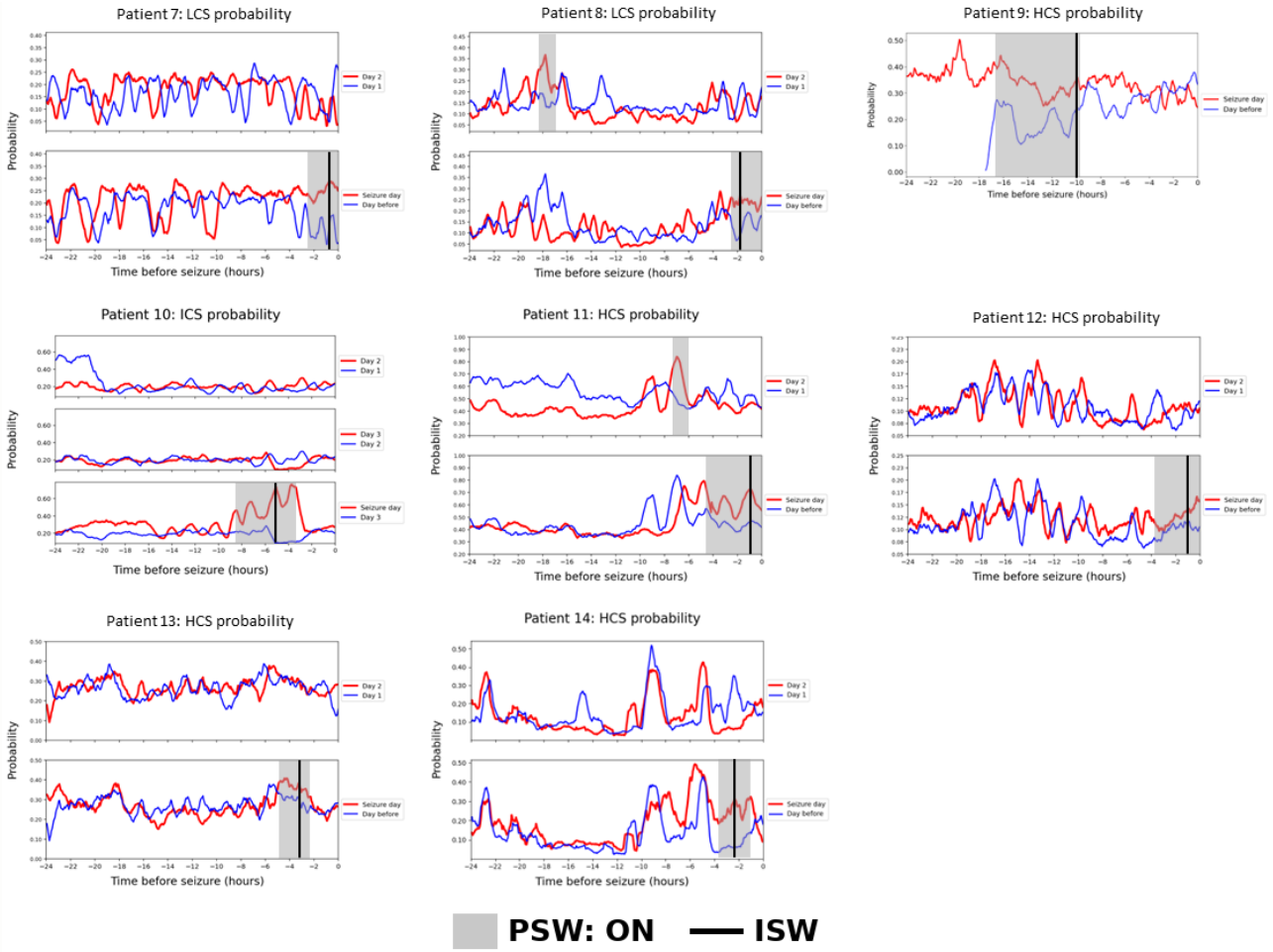

Fig. S4. Updated patient-specific configuration (Patients 7-14). Continuation of Fig. S3 for Patients 7-14. Conventions as in Fig. S3: the panel title indicates the selected biomarker (HCSp/ICSp/LCSp); gray shaded regions denote PSW ON intervals; the solid vertical black line marks the ISW. Across the full cohort, the updated configuration correctly identified the preictal period in 13 of 14 patients (all except Patient 9), reducing the mean false-alarm time-in-warning to 2% (SEM 0.44%, SD 1.6%).