An experiment has sample space $S = \{a, b, c, d, e, f, g, h\}$ and probabilities $P(\{a\}) = P(\{b\}) = P(\{c\}) = P(\{d\}) = 1/8$, $P(\{e\}) = 2/9$, and $P(\{f\}) = 1/9$. The events $\{c, d, g, h\}$ and $\{b, d, f, h\}$ are independent given event $\{e, f, g, h\}$. What is $P(\{h\})$?

(a) 1/18

(b) 1/9

(c) 1/3

(d) 1/6

(e) 1/2

(f) 2/3

(g) 2/9

(h) 4/9

(i) 5/6

(j) 1/4

(k) 1/27

(l) None of these