

Table S1. Main risk factors and their distribution states of accident A.

First grade index	Second grade index	Description	Distribution state
Person (S1)	Driver factor (X1)	Speeding, fatigue driving, operational errors, negligence, and other violations.	Good condition (0), bad condition (1)
	Escort factor (X2)	Resignation without authorization, negligence, illegal operation, and inadequate supervision.	Good condition (0), bad condition (1)
Vehicle (S2)	Vehicle emergent factor (X3)	Tire burst, brake failure, tank uncoupling, vehicle spontaneous combustion, and tire fire.	Good (0), breakdown (1)
	Vehicle wear factor (X4)	Mechanical failure of other vehicles.	Good condition (0), bad condition (1)
Tank (S3)	Tank emergent factor (X5)	Tank body rupture, safety valve leakage, and valve failure.	Good condition (0), bad condition (1)
	Tank wear factor (X6)	Aging and disrepair of tanks and safety accessories.	Good condition (0), bad condition (1)
Environment (S4)	Weather factor (X7)	The road surface was slippery in rainy and snowy weather; the visibility was low in foggy weather; the exposure of dangerous goods leaked in high temperature; the tank ruptured in low temperature and cold weather.	Sunny (0), other (1)
	Road factor (X8)	Poor smoothness, wet and slippery, unreasonable road alignment, no signal at intersection, steep slopes and sharp turns.	Flat (0), other (1)
	Time factor (X9)	Driving time was 18:00-06:00 at night.	Time 06:00-18:00 (0), Time 18:00-06:00 (1)
	Lighting factor (X10)	No lighting equipment in the traffic section.	Street lighting at night (0), no street lighting at night (1)

Note: Accident A referred to the dangerous goods transportation accident on the cross-tributary bridges of Baiyangdian Lake.

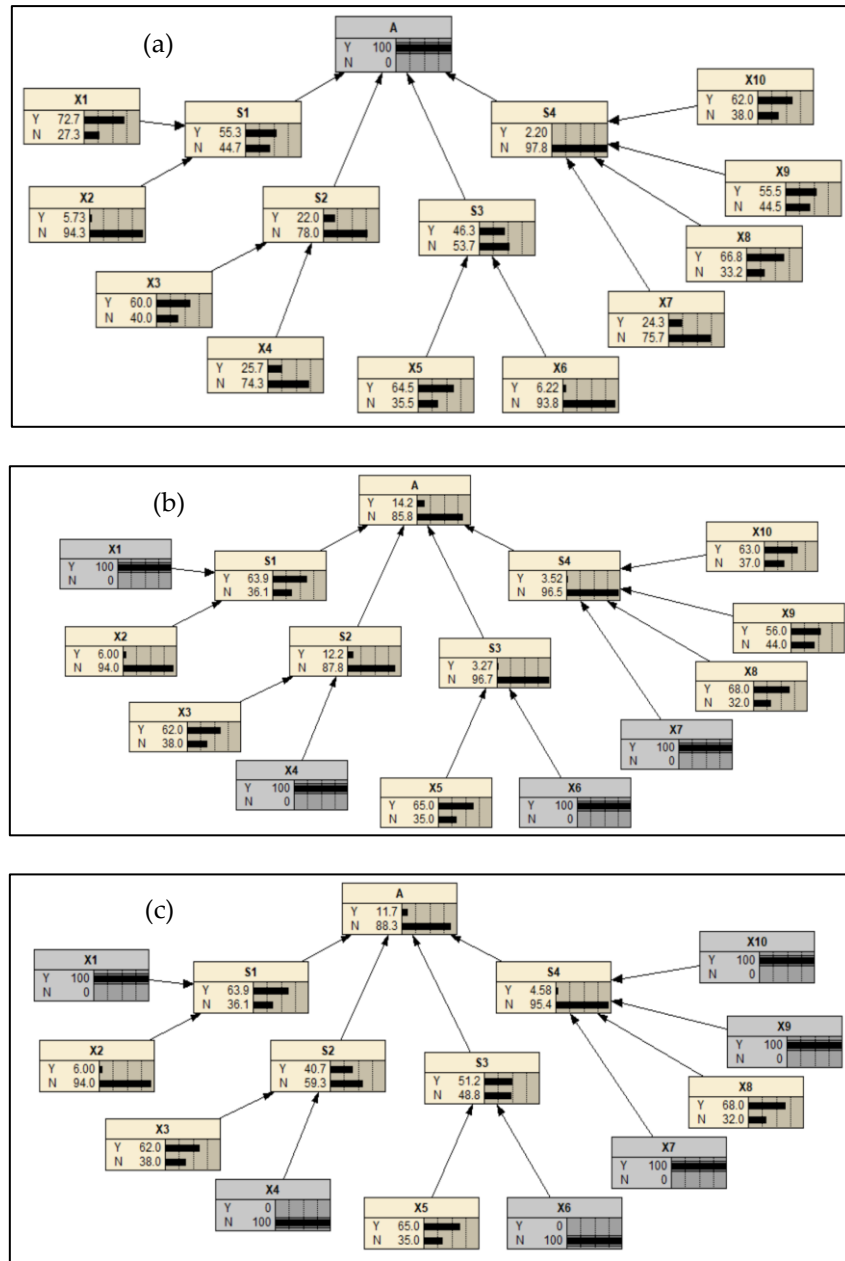


Figure S1. (a) Bayesian diagnosis reasoning results of dangerous goods transportation accidents 1 (b) Bayesian diagnosis reasoning results of dangerous goods transportation accidents 2 (c) Bayesian diagnosis reasoning results of dangerous goods transportation accidents 3.