Table S2. Data extraction of included studies.

Study	Design	Setting/acquisition period	Inclusion/trauma bay admission	age (years)	Patients No.	Imaging modality/ROI	Main findings/incidences	Author conclusion
Thorax and rib cage								
Lampart 2019	Retrospective cohort study on consecutive patients	Two German and Swiss level 1 trauma centers/2016	≥65y, LEF/no	Median 82 (65-105)	2839 (♀ 64.1%, ♂ 35.9%)		– prevalence of rib fractures: 3.0% (n/a) – rib fractures diagnosed in XR and CT: 7% – rib fractures diagnosed in CT only: 25% – rib fractures diagnosed in XR only: 3%	– low sensitivity (22.7%) and poor likelihood ratios (LR^+ 5.3, LR^- 0.8) for XR – XR examination of the chest does not safely rule-in or rule-out fractures of the rib cage
Singleton 2019	Retrospective cohort study (trauma registry data)	U.S. level 1 trauma center/2012-2015	≥65y, LEF/yes	Mean 83 (SD 9.4)	330 (♀ 61%, ♂ 39%)	XR and CT/thorax	– incidence of rib fracture: 29% (n/a) – rib fracture diagnosed in XR and CT: 9% – rib fractures diagnosed in CT only: 21% – rib fractures diagnosed in XR only: 0.6%	– CT with higher sensitivity for rib fractures – no significant difference in resource utilization or in-hospital mortality
Thoracolumbar spine								
Karul 2013	Retrospective cohort study on consecutive patients	German university level 1 trauma center /2008-2012	All age, LEF/yes	Mean 67 (SD 20)	107 (♀ 49.5%, ♂ 50.5%)	XR and CT/thoracic spine	– prevalence of thoracic spine fracture: 60.7%% (n/a) – thoracic spine fracture diagnosed in XR and CT: 29.9% – thoracic spine fractures diagnosed in CT only: 30.8% – rib fractures diagnosed in XR only: 17.8%	– XR with poor sensitivity (49.2%) and poor likelihood ratios (LR^+ 1.1, LR^- 0.9) for XR for thoracic spine fractures – Considering significant therapeutic steps following fractures detection, indication for biplane radiography should be very restrictive

Lampart 2019	Retrospective cohort study on consecutive patients	Two German and Swiss university level 1 trauma centers/2016	≥65y, LEF/no	Median 82 (65-105)	2839 (♀ 64.1%, ♂ 35.9%)	XR and CT/thoracic and lumbar spine	– prevalence of thoracic spine fractures: 2.2% (n/a) – prevalence of lumbar spine fractures: 2.5% (n/a) – fractures diagnosed in XR and CT: thoracic: 25%, lumbar: 34% – fractures diagnosed in CT only: thoracic: 36%, lumbar: 25% – fractures diagnosed in XR only: thoracic: 0%, lumbar: 0%	– low sensitivity (40.0%) and poor positive likelihood ratio (LR^- 0.6) for XR for fractures of thoracic spine – moderate sensitivity (57.8%) and moderate positive likelihood ratio (LR^- 0.4) for XR for fractures of lumbar spine – XR examination of the thoracolumbar spine does not safely rule-in or rule-out fractures
Hip and pelvic ring								
Böhme 2012	Retrospective cohort study	German university level 1 trauma center/2004 - 2010	>65y, LEF (74%), MVA (13%), other trauma (13%)/yes	Median 81 (65-100)	310 (♀ 82%, ♂ 18%)	XR optional CT (84) vs. XR standard CT (226)/pelvis	– type-A-fractures: 64% vs. 36% (n/a) – type-B-fractures: 25% vs. 49% (n/a) – type-C-fractures: 9% vs. 10% (n/a) – isolated sacral fracture: 1% vs. 6% (n/a)	– more type-B-fractures and isolated sacrum fractures in CT – change of treatment procedures
Dunker 2012	Retrospective cohort study	Two trauma centers, Sweden/ 2006-2008	>60y, LEF, negative XR/no	Median 83 (60-98)	193 (♀ 62.7%, ♂ 37.3%)	XR prior to CT within 24 hours/pelvis	– CHF: 21% (n/a) – trochanteric fractures: 35% (n/a) – no fracture signs: 44% (n/a) – false-negative CT: 2% (n/a)	– CT detects nearly all missed CHF/trochanteric fractures – negative CT is near-perfect in ruling out a hip fractures requiring surgery
Eggenberger 2019	Retrospective cohort study	U.S. level 1 trauma center/2009-2013	>50y, LEF, negative XR/no	Mean 79 (SD 12.0)	281 (♀ 70.0%, ♂ 30.0%)	XR prior to CT in ED/pelvis	– CT identified fractures in 31% – pelvic ring fractures: 17.6% (n/a) – hip fractures: 10.7% (n/a) – acetabular fractures: 1.5% (n/a)	– CT may be adequate to rule out hip and pelvic ring fractures in elderly patients with LEF – MRI is not of superior sensitivity for fractures in this patients

Heikal 2014	Retrospective cohort study	Royal Devon and Exeter Hospital, UK/2007-2011	LEF, negative XR/no	Mean 81.2 (45-103)	65 (♀ 64.6%, ♂ 35.4%)	XR prior to CT in ED/pelvis	– pelvic ring and hip fracture 56.5% (n/a) – CHF 20% (n/a) – acetabular fractures 13.8% (n/a)	use of CT improves care of patients with occult hip fractures
Lampart 2019	Retrospective cohort study on consecutive patients	Two German and Swiss level 1 trauma centers/2016	≥65y, LEF/no	Median 82 (65-105)	2839 (♀ 64.1%, ♂ 35.9%)		– prevalence of rib fractures: 5.4% (n/a) – pelvic ring fractures diagnosed in XR and CT: 19% – pelvic ring fractures diagnosed in CT only: 43% – pelvic ring fractures diagnosed in XR only: < 1%	– high specificity (98.5%) and high positive likelihood ratio (LR^+ 22.4) of XR for fractures – poor negative likelihood ratio (LR^- 0.6) – negative XR does not safely rule-out a fracture of the pelvic ring
Natoli 2017	Retrospective cohort study	U.S. University level 1 Trauma Center/2004-2014	≥60y, LEF/n/a	Mean 80.6 (n/a)	87 (♀ 83%, ♂ 17%)	XR (45) vs. XR prior (42) to CT(32)/MRI (10)/pelvis	posterior pelvic ring injuries in: – XR: 15.6% (n/a) – CT/MRI: 61.9% (n/a)	– CT/MRI identified more posterior pelvic ring injuries – unaffected: hospital admission rate, LOS, secondary displacement, treatment recommendations – advanced imaging not necessary
Nüchtern 2015	Prospective cohort study	German university level 1 trauma center/2009-2012	LEF (78%) anterior pelvic ring fracture on XR/n/a	Mean 74.7 (SD 15.6)	60 (♀ 88%, ♂ 12%)	XR prior to CT in ED and MRI within 7d/pelvis	– posterior pelvic ring fracture: 80% (n/a) – missed posterior fractures in CT: 17% (n/a)	– CT and clinical examination equally effective in detecting posterior pelvic ring fractures – MRI superior in detecting undisplaced fractures in osteoporotic bone
Schicho 2016	Retrospective cohort study (consecutive patients)	German university level 1 trauma center/n/a (3 year period)	≥75y, blunt pelvic trauma including LEF/n/a	study population: n/a patients with sacral fractures mean 85,1 (SD 6.1)	233 (56 sacral fractures: ♀ 88%, ♂ 22%)	XR prior to CT in ED/pelvis	– sacral fractures in CT: 24% (n/a) – pubic bone fractures in CT: 75% (n/a) – XR sacral fractures: sensitivity 10.5%, specificity 99.4%, NPV 77.8%, PPV 85.5%	– XR likely misses fractures of the posterior pelvic ring – fractures of the pelvic ring should be identified due to high mortality caused by prolonged immobilization

							– XR pubic bone fractures: sensitivity 65.7%, specificity 90.3%, NPV 76.8%, PPV 84.3%	
Thomas 2016	Retrospective cohort study on consecutive patients	University Hospital of Wales/2013-2015	≥65y, LEF/no	Median 85 (65-100)	199 (♀ 68.3%, ♂ 31.7%)	XR prior first-line CT/second line MRI/pelvis	– occult hip fractures: 23.1% (n/a) – occult pelvic ring fractures: 29.1% (n/a)	– CT is appropriate first-line investigation for occult hip fractures – CT: sensitivity and specificity of 100% for proximal femoral and pelvic ring fractures

CHF, cervical hip fracture; CT, computed tomography; ED, emergency department; LEF, low energy fall; LOS, length of stay; LR^+, positive likelihood ratios, LR^-, negative likelihood ratio; MRI, magnetic resonance imaging; NPV, negative predictive value; PPV, positive predictive value; ROI, region of interest; SD, standard deviation; XR, plain radiography; n/a, not applicable.